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CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 1

January 15, 1927

Personnel (Jan. 1-15) and Field Station (Dec. 16-31) Issue

PERSONNEL ITEMS

Charles E. Chambliss, associate agronomist in charge of rice investigations, has been authorized to attend the annual meeting of the Association of Southern Agricultural Workers, to be held at Atlanta, Ga., February 2, 3, and 4. Mr. Chambliss assisted in preparing the program, providing for speakers from the U. S. Department of Agriculture.

From Atlanta Mr. Chambliss will proceed to Louisiana for his usual spring work at the Rice Experiment Station and for necessary travel in connection with his project. He will be away from Washington about five weeks.

Miss L. M. Hamilton, clerk in the department of plant pathology, University Farm, St. Paul, Minn., came to Washington on January 4 to assist Dr. E. O. Stakman in the preparation of cooperative manuscripts for publication.

Dr. J. R. Holbert, in charge of the investigations of corn root, stalk, and ear rots, in cooperation with Funk Brothers Seed Company, Bloomington, Ill., will address the Illinois Farmers' Short Course, January 17 on the subject of A New Way of Increasing Yields of Corn.

Dr. Holbert also will present a paper entitled "Where Are We in Corn Breeding?" before the Annual Meeting and Banquet of the Illinois Crop Improvement Association on January 20.

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H. H. McKinney, pathologist in charge of cereal virus disease investigations, who is with the Allison Armour Expedition, wrote on December 15 from Gibraltar that Dr. David Fairchild was to join the party the next day and on the following Sunday, December 19, the yacht "Utowana" would leave for the Canary Islands, reaching port at Christmas.

Mr. McKinney had visited some of the English scientists before leaving Southampton. Mr. McKinney's address is care of Allison V. Armour, Yacht Utowana, Guaranty Trust Co., 50 Pall Mall, London.

#### VISITORS

Dr. E. D. Ball, formerly Director of Research in the U. S. Department of Agriculture, now of the Celery Leaf Tyer Laboratory at Sanford, Fla., was an Office visitor January 3.

Dr. Arthur H. Cole, professor of economics at Harvard University, was in the Office during the Holidays conferring with Mr. Chambliss regarding the history of rice culture in the United States.

Dr. W. C. Etheridge, of the department of field crops, College of Agriculture and Agricultural Experiment Station of the University of Missouri, called at the Office January 6.

Luis Montero, agricultural commissioner for Peru, was an Office visitor on January 3. In February Señor Montero will visit the Rice Experiment Station, Crowley, La.

Dr. Edith M. Patch, entomologist of the Agricultural Experiment Station of the University of Maine, was an Office visitor on January 5.

Alan E. Treloar, of Sydney, Australia, a graduate student at the University of Minnesota under the William Farrer Fellowship, was an Office visitor during the week of January 3. Mr. Treloar came to Washington from Philadelphia where he attended the meetings of the American Association for the Advancement of Science.

### MANUSCRIPTS AND PUBLICATIONS

1 A paper entitled "The Development of Disease-Resistant Strains of Corn," by J. R. Holbert and J. G. Dickson, was approved January 6 for publication in the Journal of the American Society of Agronomy.

2 A manuscript entitled "The Theoretical Aspects of Small Grain Breeding," by C. E. Leighty, was approved January 15 for publication in the Journal of the American Society of Agronomy. (Paper read as a part of the symposium on "Procedure and Results of Small Grain Breeding" at the meeting of the Society held in Philadelphia, Pa., Dec. 31, 1926.)

The article entitled "The Alternate Hosts of Crown Rust, Puccinia coronata Corda," by S. M. Dietz, appears in the Journal of the Agricultural Research 33 (No. 10): 953-970, figs. 1-4. November 15, 1926. (Received January 13, 1927.) (Cooperation between the Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

The paper entitled "The Technical Bulletin as a Writer Sees It," by Carleton R. Ball, appears in the Journal of the American Society of Agronomy 19 (No. 1): 8-16. January, 1927. (Paper read as a part of the symposium on "Publication of Results of Agronomic Research" at the meeting of the Society held in Washington, D. C., on November 18, 1926.)



# FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)  
V. F. Tapke, Acting in Charge

Arlington Experiment Farm, Rosslyn (Cereal Smuts, ~~W. H. Tisdale~~)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney and R. W. Webb)

Arlington Experiment Farm, Rosslyn (Cereal Bacterial Diseases, C. S. Reddy)

### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

### LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Earinger)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J.H.Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurely Fellow)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C.O.Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, G. F. Sprague)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)



## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (December 17)

The cold weather that prevailed during the latter half of November has continued with added intensity during the first half of December. The mean temperature for the latter period was about 8 degrees, while the normal mean temperature for the month of December at this station is about 17.4 degrees. The average wind velocity for the first half of December was 8 miles an hour and the precipitation was 0.60 inch.

A maximum temperature of 41 degrees was reached on December 11 when the weather was unusually mild and calm. On that day the barometer registered 28.9, which is the lowest point observed here during the past four years. That night a blizzard set in which lasted all night and with abated violence all the next day. This was followed by below zero weather, the coldest being 22 degrees below zero on the 14th and 15th. Only about 2 inches of snow fell during the storm. This was badly drifted, but previous snow had melted and stuck to the ground giving as yet good protection to the winter grain.

The ears obtained from the corn varieties are being weighed and shelled and the yields computed. The results so far indicate that the yields will be the lowest ever obtained from corn varieties here, with the possible exception of 1921.

Progress is being made with the annual report of cereal experiments.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus)

## MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, R. W. May) (January 1)

Aside from a period of medium low temperatures about the middle of the month and two dust storms in the latter part of the month, December was a very favorable month for fall-sown wheat, which appears to be in fine condition. This is particularly noticeable in the wheat which was sown early.

The precipitation recorded in December was 0.34 inch, as compared to 0.77 inch as the normal for the month. The precipitation recorded in November was 0.81 inch, as compared to 0.70 inch as the normal. Temperatures in December averaged above normal. Maximum temperatures recorded during the month were 58 degrees and 51 degrees on December 31 and 2, respectively, while the minimum temperatures recorded were 22 degrees below and 18 degrees below on December 13 and 14.

Seed of the varieties and hybrids of winter and spring wheats grown in the nursery was sent to Washington and crude protein determinations were made therefrom. The protein content, protein per acre, and average yields of the leading varieties grown in either three or nine replicated rows are reported herewith. In the spring wheat nursery there were included 88 strains of the Marquis x Hard Federation crosses, 66 of which exceeded or equalled the average yield of the Marquis checks. Only the 15 leading strains of this cross are recorded, together with all other hybrids and varieties that exceeded the average yield of the Marquis check rows.

Crude protein content, protein per acre, and acre yield of 79 winter wheat varieties or hybrids yielding 30.0 bushels per acre and grown in nursery rows replicated three times at the Judith Basin Substation, Moccasin, Mont., in 1926

Variety or cross	: : C.I.: : No.:	: : Hybrid No. :	: Crude : protein: : content:	: Protein: : per : acre	: Yield : Per : acre
	: :	: :	: Per cent	Lbs.	: Bu.
Turkey	: 8220:		: 14.6 :	456	: 52.1
Turkey x Minessa	: :	: 1950A9-11-8	: 14.2 :	403	: 47.3
Padui x Beloglina-Buffum 5545	: :	: 19130A11-12-10	: 13.5 :	349	: 43.1
Turkey x Odessa 3687	: :	: 7415-2-2	: 14.2 :	351	: 41.2
Eureka x Turkey 6152	: :	: 1958A7-2-5	: 15.5 :	381	: 41.0
Regal	: 7364:		: 14.5 :	357	: 41.0
Turkey x Odessa 3687	: :	: 7415-2-14	: 14.3 :	346	: 40.3
Eureka x Turkey 6152	: :	: 1958A7-1-9	: 13.4 :	315	: 39.2
Minturki x Beloglina-Buffum 5546	: :	: 19115A7-21-9	: 14.5 :	340	: 39.1
Minard	: 6690:		: 13.7 :	321	: 39.1
Kanred x Minhardi	: :	: 20102D1-33-1	: 13.2 :	301	: 38.0
Do	: :	: 20102D1-52-9	: 14.8 :	333	: 37.5
Minhardi x Minturki	: 8048:	: 19124A1-3-17	: 13.6 :	307	: 37.6
Turkey x Minessa	: :	: 1950A9-20-11	: 15.3 :	337	: 36.7
Minhardi x Minturki	: :	: 19124A1-2-6	: 14.6 :	320	: 36.5
Newturk	: 6935:	: 166B1-6	: 13.2 :	288	: 36.4
Turkey	: 6152:		: 14.9 :	325	: 36.3
Ridit	: 6703:		: 15.1 :	328	: 36.2
Turkey	: 6250:		: 13.9 :	300	: 36.0
Kanred x Minhardi	: :	: 20102G3-87-9	: 14.0 :	301	: 35.8
Beloglina-Buffum 5545 x Odessa 3687	: :	: 19132D12-8-4	: 13.4 :	288	: 35.8
Turkey x Minessa	: :	: 1950A9-15-2-18	: 14.8 :	317	: 35.7
Beloglina-Buffum	: 5545:		: 15.0 :	320	: 35.5
Minturki x Turkey	: :	: 1955A2-111-2	: 14.4 :	304	: 35.2



## Continued

Variety or cross	C.I. No.	Hybrid No.	Crude protein content	Protein per acre	Yield per acre
			Per cent	Lbs.	Bu.
Turkey x Minnessa		1950A9-15-3-13	14.0	294	35.0
Kanred x Beloglina-Buffum 5545		19107A1-17-3	14.4	297	34.4
Kanred x Minhardi		20102G3-93-12	13.8	267	34.2
Do		20102G3-92-5	14.6	298	34.0
Do	8043	20102G3-93-5	15.0	304	33.8
Minturki x Beloglina-Buffum		19115A7-21-15	14.8	299	33.7
Minturki x Turkey		1955A2-43-9-2	14.7	296	33.6
Padui x Odessa 3687		19129A3-24-5	14.1	283	33.5
Turkey x Minnessa		1950A9-15-3-6	15.4	309	33.4
Turkey 1558 x Odessa 3687		7415-6-17	15.0	301	33.4
Do	8050	7415-9-7	15.0	297	33.0
Do		7415-9-12	14.6	289	33.0
Minturki x Turkey		1955A2-108-7	13.9	274	32.9
Minturki x Beloglina-Buffum 5546		19115A7-30-9	14.1	278	32.9
Turkey 1558 x Odessa 3687		7415-5-6	14.2	279	32.8
Turkey x Minnessa		1950A9-20-4	16.5	324	32.7
Odessa	3637		14.2	279	32.7
Minturki x Beloglina-Buffum 5546		19115A7-30-6	15.2	298	32.7
Minhardi x Eureka		1965B1-15-4	14.3	280	32.6
Kanred x Minhardi	8044	20102G3-93-7	12.9	239	30.9
Turkey x Odessa		7415-5-1	14.9	290	32.4
Turkey x Odessa		7415-9-13	14.6	284	32.4
Karmont	6700		14.6	283	32.3
Minhardi x Eureka		1965B1-21-4	13.8	267	32.3
Turkey x Odessa		7415-10-8	14.2	274	32.2
Turkey x Minnessa		1950A9-15-2-15	14.9	287	32.1
Minturki x Beloglina-Buffum 5546		19115A7-30-1	13.4	258	32.1
Kanred x Minhardi	8042	20102G3-87-12	14.3	275	32.0
Beloglina-Buffum	5548		14.2	272	31.9
Minnessa x Eureka		1961A8-15-4	13.9	265	31.8
Minturki x Beloglina-Buffum 5546		19115A7-28-11	14.3	273	31.8
Turkey x Minnessa		1950A9-15-3-25	13.8	262	31.7
Kanred x Minhardi	8037	20102G3-83-10	13.7	261	31.7
Minhardi x Minturki		19124A1-5-2	14.8	281	31.7
Kanred x Odessa		19105A3-13-5	15.9	301	31.6
Kanred x Beloglina-Buffum 5545		19107A1-16-8	14.2	269	31.6
Turkey x Odessa		7415-6-18	14.3	270	31.5
Kanred x Minhardi	8038	20102G3-85-5	13.6	255	31.2
Minhardi x Minturki		19124A1-5-1	15.4	287	31.1
Kanred x Buffum		19100B1-33-3	15.9	296	31.0
Minturki x Turkey		1955A2-108-4	14.6	271	30.9
Minhardi (check)	5149		14.1	261	30.8
Turkey x Minnessa		1950A9-21-2	14.4	265	30.7
Do		1950A9-26-2	15.2	280	30.7
Kanred x Minhardi		20102G3-82-2	15.0	276	30.7
Turkey x Odessa		7415-10-20	14.6	268	30.6

## Continued

Variety or cross	C.I. No.	Hybrid No.	Crude protein content	Protein per acre	Yield per acre
			Per cent	Lbs.	Bu.
Kanred x Beloglina-Buffum 5545	: 1558:	: 19107A1-16-6	: 15.3	: 280	: 30.5
Turkey			: 13.6	: 249	: 30.5
Kanred x Minhardi		: 20102G3-92-9	: 15.0	: 273	: 30.3
Minturki x Beloglina-Buffum 5546		: 19115A7-30-4	: 14.2	: 258	: 30.3
Beloglina-Buffum 5548 x Odessa 3687:8049		: 19135A6-12-6	: 15.3	: 278	: 30.3
Minturki x Beloglina-Buffum 5546		: 19115A7-27-4	: 14.6	: 265	: 30.2
Eureka	: 5170:		: 13.9	: 251	: 30.1
Turkey x Bd. (Minn. No. 48)			: 15.6	: 282	: 30.1
Minturki x Beloglina-Buffum 5546		: 19115A7-21-7	: 14.5	: 262	: 30.1

Crude protein content, protein per acre, and acre yields of 75 varieties or hybrid spring wheats yielding above the average of the Marquis checks when grown in three or nine replicated rod rows at the Judith Basin Substation, Moccasin, Mont., in 1926

Variety or Cross	C.I. No.	Hybrid No.	Crude protein content	Protein per acre	Yield per acre
			Per cent	Lbs.	Bu.
<u>Common Wheats</u>					
Kanred x Marquis	: 2397:	: 1718B9-14-24	: 14.4	: 384	: 44.5
Erivan			: 15.5	: 404	: 43.4
Kanred x Marquis		: 1718B9-11-50	: 15.0	: 382	: 42.4
Do		: 1718B2-14-20	: 14.1	: 356	: 42.1
Marquis x Hard Federation		: 2B1-24-63	: 14.2	: 358	: 42.0
Kanred x Marquis		: 1718B9-14-42	: 14.5	: 363	: 41.7
Do		: 1718B9-14-3	: 14.9	: 366	: 40.9
Do		: 1718B9-14-22	: 14.2	: 348	: 40.8
Reliance	: 7370:	: 1718B3-11(check)	: 15.4	: 377	: 40.8
Kota-Hd.FederationxKanred-Marquis <sup>1/</sup>		: 23270B2-1-2	: 15.3	: 372	: 40.5
Kanred x Marquis		: 1718B8-11-64	: 15.9	: 384	: 40.2
Hard Federation x Marquis		: 3A2-77-44	: 14.9	: 359	: 40.2
Marquis x Hard Federation		: 2B1-24-25	: 14.3	: 344	: 40.1
Kanred x Marquis		: 1718B8-11-45	: 15.3	: 368	: 40.1
Hard Federation x Marquis		: 3A1-49-30	: 14.5	: 348	: 40.0
Kanred x Marquis		: 1718B9-14-28	: 14.9	: 356	: 39.8
Marquis x Hard Federation		: 2B2-84-1	: 15.0	: 357	: 39.7
Kanred x Marquis		: 1718B8-11-18	: 15.1	: 360	: 39.7
Marquis x Erivan		: 1733B3-12-6	: 16.0	: 381	: 39.7
Marquis x Hard Federation		: 2B1-78-26	: 14.2	: 336	: 39.4
Kanred x Marquis		: 1718B3-11-16	: 14.9	: 352	: 39.4
Kota x Galgalos <sup>1/</sup>		: 3A5-71-23	: 15.9	: 376	: 39.4
Kota-Hd.FederationxKanred-Marquis <sup>1/</sup>		: 23270A3-6-4	: 14.0	: 331	: 39.4

<sup>1/</sup>Grown from single rows



Continued

Variety or Cross	: C. I. : : No. :	: Hybrid No. :	: Crude	: Protein:	: Yield
			: protein:	per	: per
			: content:	acre	: acre
			Per cent	Lbs.	Bu.
Marquis x Hard Federation	:	: 2A1-34-31	: 14.1	: 329	: 38.9
Kanred x Marquis	:	: 1718B2-14-1	: 15.1	: 352	: 38.8
Supreme	: 8026	:	: 14.4	: 334	: 38.7
Marquis x Hard Federation	:	: 2B1-24-55	: 14.2	: 330	: 38.7
Do	:	: 2B1-30-2	: 14.3	: 332	: 38.7
Red Bobs Sel.	: 6255-25	:	: 13.4	: 310	: 38.5
Do	: 6255-32	:	: 15.0	: 347	: 38.5
Marquis x Kota	: 8004	: 1656-84	: 15.3	: 353	: 38.5
Kota x Galgalos <sup>1/</sup>	:	: 3A6-36-13	: 15.8	: 365	: 38.5
Marquis x Hard Federation	:	: 2B3-39-11	: 14.5	: 334	: 38.4
Do	:	: 2A1-34-35	: 15.2	: 349	: 38.3
Do	:	: 2B1-24-44	: 14.7	: 338	: 38.3
Do	:	: 2B1-24-67	: 14.6	: 336	: 38.3
Kota x Galgalos <sup>1/</sup>	:	: 3A5-71-11	: 16.1	: 370	: 38.3
Marquis x Hard Federation	:	: 2B3-79-1	: 15.1	: 346	: 38.2
Kanred x Marquis	:	: 1718B2-14-5	: 14.9	: 341	: 38.1
Do	: 8191	: 11-18-46	: 15.3	: 350	: 38.1
Marquis x Hard Federation	:	: 2A1-34-3	: 14.5	: 331	: 38.0
Marquis x Erivan	:	: 1733B3-19-2	: 15.6	: 355	: 37.9
Kanred x Marquis	: 7371	: 1718B9-11(check)	: 15.1	: 344	: 37.7
Kanred x Marquis	:	: 1718B8-11-40	: 16.5	: 373	: 37.7
Kanred x Marquis	:	: 1718B2-14-17	: 15.7	: 352	: 37.4
Do	:	: 1718B9-14-37	: 14.4	: 322	: 37.3
Do	:	: 1718B9-11-45	: 16.2	: 362	: 37.2
Kanred x Marquis	:	: 1718B9-11-37	: 16.1	: 351	: 37.0
Red Bobs Sel.	: 6255-51	:	: 14.5	: 321	: 36.9
Kanred x Marquis	:	: 1718B9-11-52	: 15.3	: 339	: 36.9
Kanred x Marquis	:	: 1718B2-14-9	: 14.5	: 318	: 36.5
Kanred x Marquis	:	: 1718B9-11-40	: 16.4	: 358	: 36.4
Kanred x Marquis	:	: 1718B2-14(check)	: 14.9	: 325	: 36.3
Marquis x Kota	: 8005	: 1656-97	: 15.3	: 333	: 36.3
Kota x Hard Federation	:	: 8D10-1-2	: 15.0	: 326	: 36.2
Kanred x Marquis	:	: 1718B2-14-2	: 15.7	: 340	: 36.1
Kanred x Marquis	:	: 1718B9-11-21	: 15.6	: 334	: 35.7
Do	:	: 1718B2-14-4	: 15.6	: 334	: 35.7
Marquis x Sunset	:	: 7A1-16-6	: 14.5	: 310	: 35.6
Kanred x Marquis	: 7372	: 1718B9-14(check)	: 14.2	: 300	: 35.2
Kanred x Marquis	:	: 1718B2-14-18	: 14.8	: 310	: 34.9
Kota x Hard Federation	:	: 8C15-2-1-1	: 15.8	: 331	: 34.9
Marquis x Kota	: 8190	: 11-19-57	: 16.2	: 339	: 34.9
Do	: 8188	: 1656-169	: 16.1	: 337	: 34.9
Do	: 8184	: 1656-79	: 16.5	: 345	: 34.8
Kanred x Marquis	:	: 1718B9-11-14	: 15.8	: 329	: 34.7
Red Bobs Sel.	: 6255-23	:	: 14.5	: 302	: 34.7
Kota x Hard Federation	: 8200	: 20148A1-16-27-1-3	: 15.9	: 331	: 34.7

<sup>1/</sup>Grown from single rows

## Continued

Variety or Cross	: C.I.:	Hybrid No.	: Crude : Protein: Yield
	: No.:		: protein: per : per
			: content: acre : acre
			Per cent Lbs. Bu.
Kanred x Marquis	: 1718B9-14-26	: 15.3	: 318 : 34.6
Marquis x Kota	: 8189:II-19-46	: 16.0	: 331 : 34.5
Kanred x Marquis	: 1718B9-11-18	: 15.4	: 318 : 34.4
Marquis x Kota	: 8185:1656-81	: 16.5	: 338 : 34.1
Kanred x Marquis	: 1718B9-11-48	: 15.6	: 317 : 33.9
Kanred x Marquis	: 1718B9-11-27	: 15.3	: 308 : 33.5
Marquis	: 3641:	: 15.4	: 308 : 33.3

Yield of seven selections from Peliss durum wheat yielding above the average of the Peliss checks, C. I. No. 1584

Peliss Sel.	: 1584-14:	: 45.0
Do	: 1584-84:	: 39.1
Do	: 1584-78:	: 38.5
Do	: 1584-87:	: 37.8
Do	: 1584-88:	: 36.0
Do	: 1584-98:	: 35.5
Do	: 1584-29:	: 35.4
Peliss (check)	: 1584 :	: 34.5

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

WESTERN BASIN AND COAST AREAS (North to West and South)

IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

Sherman County Branch Station, Moro (Cereal Breeding, B. B. Bayles)

## CALIFORNIA

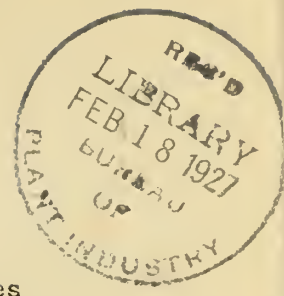
Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)







## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 2

January 31, 1927  
Personnel (Jan. 16-31) and Project Issue

### PERSONNEL ITEMS

Charles E. Chambliss, associate agronomist in charge of rice investigations, left Washington January 31 to attend the meetings of the Southern Agricultural Workers to be held at Atlanta February 2, 3, and 4.

From Atlanta Mr. Chambliss will proceed to Crowley, La., to prepare for seeding the rice nursery at the Rice Experiment Station. Later he will visit Lake Charles, La., and Beaumont, Tex., in the interests of rice investigations. Early in March Mr. Chambliss will be at Columbia, Mo., to confer with the head of the department of agronomy with reference to rice investigations at Elsberry, Mo., this year. He also will arrange for rice experiments at Lewistown, Ill. He will return to Washington about March 15.

Miss L. M. Hamilton, clerk in the department of plant pathology, University Farm, St. Paul, Minn., returned to her headquarters on January 29, the work in connection with the preparation of cooperative manuscripts for which she was authorized to come to Washington, having been completed.

Dr. G. N. Hoffer, agent in charge of corn root rots and metallic-poison investigations in cooperation with the Purdue University Agricultural Experiment Station at La Fayette, Ind., has been authorized to attend the annual meeting of the Association of Southern Agricultural Workers at Atlanta, Ga., February 2, 3, and 4. He will present a paper on and demonstrate the methods of testing corn stalks chemically to determine potash and nitrogen needs of corn plants.

Charles S. Reddy, associate pathologist in charge of bacterial diseases of cereals, resigned his position on January 31 to accept a position in the Botany and Plant Pathology Section, Iowa State College of Agriculture, Ames, Ia. Dr. Reddy has been appointed Agent of the Office in order that he may complete manuscripts and investigations, chiefly on corn diseases, now in progress.

J. B. Sieglinger, associate agronomist in charge of the grain sorghum and broomcorn investigations at the Woodward Field Station, Woodward, Okla., came to Washington January 19 to spend two months in the Office to prepare manuscripts for publication and to confer with officials of the Department regarding grain sorghum and broomcorn production.

Dr. E. C. Stakman, agent in the cereal-disease investigations conducted in cooperation with the Minnesota Agricultural Experiment Station, returned to his headquarters on January 29 after spending several weeks in Washington in the preparation of cooperative manuscripts and in conferences with officials of the Department.

#### VISITORS

M. A. Bell, assistant superintendent of the Northern Montana Substation at Havre, Mont., called on members of the Office in the latter part of January.

Dr. T. A. Kiesselbach, professor of agronomy, College of Agriculture and Agricultural Experiment Station of the University of Nebraska, called on members of the Office on January 28 on his way back from Atlantic City, N. J., where he had been in attendance at a convention of the National Cannery Association.

C. T. Nolan, chairman of the Flax Development Committee, representing the paint and varnish industries, conferred with members of the Office on January 22 in regard to problems of flax production.

Albert Osenbrug, former superintendent of the field station of the Office of Dry-Land Agriculture at Moccasin, Mont., was an Office caller in the week of January 24. Mr. Osenbrug will take charge this spring of the dry-land agriculture investigation project at the Belle Fourche Experiment Farm, Newell, S. Dak.

### MANUSCRIPTS AND PUBLICATIONS

3 A manuscript entitled "Iogold Oats," by L. C. Burnett, was submitted January 21 for publication as a cooperative bulletin of the Iowa Agricultural Experiment Station.

4 A manuscript entitled "Strains of Kernel Smuts of Sorghum, Sphacelotheca sorghi and S. cruenta," by W. H. Tisdale, L. E. Melchers and H. J. Clemmer, was submitted January 24 for publication in the Journal of Agricultural Research.

5 A manuscript entitled "The Rusts of Small Grains and the Progress of Barberry Eradication in Iowa," by M. A. Smith, was submitted January 24 for publication as a cooperative bulletin of the Iowa State College of Agriculture.

6 A manuscript entitled "A Factor for Yellow-Green Chlorophyll Color in Maize and Its Linkage Relations," by Merle T. Jenkins, was approved January 28 for publication in Genetics.

Galley proof of article entitled "A Study of the Distribution of Tilletia tritici and T. laevis in 1926," by W. H. Tisdale, C. E. Leighty and E. G. Boerner, for publication in Phytopathology, was read January 21.

### TRANSLATIONS

Zade, Adolf Der Hafer: Eine Monographie auf wissenschaftlicher und praktischer Grundlage. 355 p., illus. Jena. 1918. (Pages 209-264 translated by T. Holm, 1926.)

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## THE 1927 AGRICULTURAL OUTLOOK

The 1927 Agricultural Outlook was prepared in the Bureau of Agricultural Economics during the month of January and was released for publication on January 28. Several members of the Office of Cereal Crops and Diseases cooperated in the preparation of this Outlook, which will be printed in the near future, as in previous years.

The Outlook for 1927 for cereal crops is summarized as follows:

"Hard Spring and Durum wheat growers can scarcely expect to receive returns for the 1927 crop similar to those which have prevailed for the 1926 crop, especially if production should be materially increased.

"Flaxseed prices for the 1927 crop are unlikely to be higher than at present. Where flax is profitable at present some increase in acreage may be made.

"Reports indicate a reduction in the rye area seeded throughout the world, but with average or better than average yields, the production in 1927 may make the total world supply equal to or greater than in the past year, so that rye prices are likely to show little change from the present.

"The too rapid expansion of rice acreage has resulted in a production in excess of demand at satisfactory prices. Some reduction in acreage rather than further increase appears advisable.

"The demand for the 1927 corn crop is expected to be little if any greater than for the 1926 crop. With probable increases of corn acreages in the South and with no probability of increased demand for corn in 1927, corn growers are faced with the prospect of lower prices unless acreage is substantially reduced.

"Oats and barley for feed are unlikely to be in greater demand during the coming year as compared with 1926. The market value will be determined largely by the supply of these and other feed grains."

C.E.L.

B.P.I. Memo. 261

January 7, 1927.

## MEMORANDUM FOR HEADS OF OFFICES.

Gentlemen:

I take pleasure in transmitting to you the following message from the Secretary and will appreciate it if you will see that it also comes to the attention of members of your staff:

"Dr. W. A. Taylor,

Chief, Bureau of Plant Industry.

Dear Dr. Taylor:

With the opening of a new year I am impressed by the constructive achievements which the Department of Agriculture has made during the past year. These have been due in no small measure to the self-sacrificing labors performed in the various bureaus and offices. The scientific ability and zeal for truth shown by you and your colleagues are worthy of high tribute. Please accept for yourself and your associates my cordial wishes for a new year full of continued achievement and happiness.

Sincerely yours,

W. M. JARDINE (Signed)

Secretary."

Permit me to add my own good wishes. The faithful service rendered by all, welded together by the fine spirit of cooperation so universally prevalent in the Bureau, has made the Bureau of Plant Industry an organization respected on the outside, and in which we alike take pride and find pleasure in our work.

Very sincerely,

WM. A. TAYLOR (Signed)

Chief of Bureau.

# ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS

## OFFICE OF CEREAL CROPS AND DISEASES

January 1 to December 31, 1926

In the calendar year 1926, 100 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural organizations, and in private journals. These were the result of 48 manuscripts submitted in 1926 and 52 manuscripts submitted in 1925. In the same period, 5 additional publications were received, bearing date of 1925, and therefore did not appear in last year's list. They are included in the list which appears on pages 19 to 30 of this number of the Cereal Courier.

In the calendar year 1926, 96 manuscripts were submitted for publication in the above mentioned channels. Of these, 48 were published and one was withdrawn from publication, leaving 47 manuscripts in press on December 31, 1926. Six manuscripts submitted in 1925 also are still in press.

### GENERAL OR MISCELLANEOUS

Ball, Carleton R. Personnel, Personalities and Research. Sci. Mo. 23 (1): 33-45. July, 1926.

Richey, Frederick D. The Moving Average as a Basis for Measuring Correlated Variation in Agronomic Experiments. Jour. Agr. Research 32 (12): 1161-1175. June 15, 1926.

### AGRONOMIC SUBJECTS

#### Barley

Harlan, H. V. El Cultivo de la Cebada en Norteamérica. Hacienda [Buffalo] 21 (12): 364-367. December, 1926.

\_\_\_\_\_ and Victor Florell. New Barleys in California. Pacific Rural Press 112 (16): 413. October, 16, 1926.

\_\_\_\_\_, E. F. Gaines, and R. G. Wiggans. Registration of Barley Varieties. Jour. Amer. Soc. Agron. 18 (10): 947-948. October, 1926.

\_\_\_\_\_ and Merritt N. Pope. Development in Immature Barley Kernels Removed from the Plant. Jour. Agr. Research 32 (7): 669-678, pl. 1, fig. 1. April 1, 1926.

\_\_\_\_\_ The Export Trade in California Barley. Brewing Trade Review [London] 40 (435): 353-355. October 1, 1926.



### Corn

Brunson, Arthur M. The Relation of Inheritance Studies to Corn Improvement. Jour. Amer. Soc. Agron. 13 (4): 308-314, fig. 1. April, 1926. (Paper read as a part of the symposium on "The Present Status of Corn Improvement" at the meeting of the Society held in Chicago, Ill., Nov. 17, 1925.) (Cooperation between Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Bryan, A. A. The Register of Merit for Strains of Corn. Iowa Homestead 71 (13): 14, illus. April 1, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Jenkins, Merle T. A Second Gene Producing Golden Plant Color in Maize. Amer. Nat. 60 (670): 484-488. September-October, 1926.

Randolph, L. F. and B. McClintock. Polyploidy in Zea mays L. Amer. Nat. 60 (666): 99-102, illus. Jan.-Feb., 1926. (Cooperation between Office of Cereal Crops and Diseases and the Cornell University Agricultural Experiment Station.)

Richey, Frederick D. Introductory Remarks to Symposium on "The Present Status of Corn Improvement." Jour. Amer. Soc. Agron. 18 (4): 306-307. April, 1926.

Robinson, Joe L. and A. A. Bryan. Iowa Corn Yield Test. Results of 1925 Tests. Plans for 1926 Tests. Iowa Corn and Small Grain Growers' Assoc., p. 1-15, illus. [1926] (Cooperation between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Salmon, S. C. Corn Production in Kansas. Kans. Agr. Expt. Sta. Bul. 238: 3-41, figs. 1-17. November, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

### Grain Sorghum and Broomcorn

Sieglinger, John B. The Spacing of Grain Sorghums. (Note.) Jour. Amer. Soc. Agron. 18 (6): 525. June, 1926.

Swanson, A. F. Relation of the Seed Coat of Feterita to the Rate of Water Absorption and Germination. Jour. Amer. Soc. Agron. 18 (5): 428-432, fig. 1. May, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

### Oats

Stanton, T. R. Oats and Oat Varieties for the Eastern Atlantic States with Special Reference to Maryland. Md. Agr. Soc. Ann. Rpt. 1925: 280-298, 1926. Repr. in Rpt. Md. Crop Impr. Assoc. 19th Ann. Meeting 1926: 280-298. [1926]

\_\_\_\_\_, Breeding Winter Oats for the South. Jour. Amer. Soc. Agron. 18 (9): 804-814, fig. 1. September, 1926. (Paper read by title before the section of agronomy at the 27th annual convention of the Association of Southern Agricultural Workers held at Atlanta, Ga., February 3-5, 1926.)

\_\_\_\_\_, F. A. Coffman and G. A. Wiebe. Fatuoid or False Wild Forms in Fulghum and Other Oat Varieties. Jour. Heredity 17 (5-6): 152-165, 213-226, figs. 1-7. May and June, 1926.

\_\_\_\_\_, Fred Griffree and W. C. Etheridge. Registration of Varieties and Strains of Oats. Jour. Amer. Soc. Agron. 18 (10): 935-947. October, 1926.

### Rice

Chambliss, Charles E. How to Obtain a Larger Yield and a Better Quality of Rice. Rice Jour. 29 (10): 11-13. October, 1926.

\_\_\_\_\_, Arroz par la América Latina. Bol. Unión Pan Amer. 60 (12): 1198-1214, figs. 1-12. December, 1926.

\_\_\_\_\_, and J. Mitchell Jenkins. Red Rice Eradication. Rice Jour. 29 (5): 23, 30, 1 fig. May, 1926.

Jenkins, J. Mitchell. Rice Experiment Station, Crowley, La. La. Agr. Expt. Stas. Rpt. 1925: 47-52. [1926] (Cooperation between Office of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Jones, Jenkin W. Experiments in Rice Culture at the Biggs Rice Field Station in California. U. S. Dept. Agr. Bul. 1387: 1-39, figs. 1-3. March, 1926.

\_\_\_\_\_, Concerning the Growth of Mung Beans on Submerged Land. (Note) Jour. Amer. Soc. Agron. 18 (4): 366-367. April, 1926.

\_\_\_\_\_, Hybrid Vigor in Rice. Jour. Amer. Soc. Agron. 18 (5): 423-428. May, 1926.

\_\_\_\_\_, Germination of Rice Seed as Affected by Temperature, Fungicides, and Age. Jour. Amer. Soc. Agron. 18 (7): 576-592. July, 1926.

\_\_\_\_\_, Experiences Among the Japanese Rice Fields. Sutter Butte [Canal Co.] Bul. [Gridley, Calif.] 2 (2): 1-3, illus. September 1, 1926.



## Wheat

Clark, J. Allen. Breeding Wheat for High Protein Content. Jour. Amer. Soc. Agron. 18 (3): 648-661, figs. 1-5. August, 1926. (Paper read as a part of the symposium on "Controlling the Quality of Crops" at the meeting of the Society held in Chicago, Ill., Nov. 17, 1925.)

\_\_\_\_\_ and John R. Hooker. Segregation and correlated Inheritance in Marquis and Hard Federation Crosses, with Factors for Yield and Quality of Spring Wheat in Montana. U. S. Dept. Agr. Bul. 1403: 1-70, pl. 1, figs. 1-12. May, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Montana Agricultural Experiment Station.)

\_\_\_\_\_, H. H. Love and E. F. Gaines. Registration of Standard Wheat Varieties. Jour. Amer. Soc. Agron. 18 (10): 920-922. October, 1926.

\_\_\_\_\_ and J. H. Parker. Registration of Improved Wheat Varieties. Jour. Amer. Soc. Agron. 18 (10): 922-935. October, 1926.

\_\_\_\_\_, J. H. Martin and J. H. Parker. Comparative Hardiness of Winter-Wheat Varieties. U. S. Dept. Agr. Circ. 378: 1-20, fig. 1. March, 1926. (Cooperation between Office of Cereal Crops and Diseases and 17 agricultural experiment stations in the United States and Canada.)

\_\_\_\_\_, \_\_\_\_\_ and E. C. Stakman. Relative Susceptibility of Spring-Wheat Varieties to Stem Rust. U. S. Dept. Agr. Circ. 365: 1-18, figs. 1-2. February, 1926. (Cooperation between Office of Cereal Crops and Diseases and the agricultural experiment stations of Minnesota, North Dakota, South Dakota, Wyoming, Nebraska, Kansas, Texas, Iowa, Wisconsin, and Michigan, and the Dominion of Canada Department of Agriculture.)

Leighty, C. E., W. J. Sando and J. W. Taylor. Intergeneric Hybrids in Aegilops, Triticum, and Secale. Jour. Agr. Research 33 (2): 101-141, figs. 1-18. July 15, 1926.

Martin, John H. Factors Influencing Results from Rate-and-Date-of-Seeding Experiments with Wheat in the Western United States. Jour. Amer. Soc. Agron. 18 (3): 193-225, figs. 1-5. March, 1926. (Paper read at the meeting of the Western Branch of the Society held at Fort Collins, Colo., June 18-20, 1925.)

## PATHOLOGIC SUBJECTS

Imperfect and Sac Fungi

Brentzel, W. E. The Pasm Disease of Flax. Jour. Agr. Research 32 (1); 25-37, pls. 1-5, fig. 1. January 1, 1926. (Cooperation between Office of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

Davis, Ray J. Studies on Ophiobolus graminis Sacc. and the Take-All Disease of Wheat. Jour. Agr. Research 31 (9): 801-825, pls. 1-6, figs. 1-5. November 1, 1925. (Received Jan. 14, 1926.) (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Dickson, James G. Making Weather to Order for the Study of Grain Diseases. Wis. Agr. Expt. Sta. Bul. 379: 1-36, figs. 1-20. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

\_\_\_\_\_ and James R. Holbert. The Influence of Temperature upon the Metabolism and Expression of Disease Resistance in Selfed Lines of Corn. (Abs.) Phytopath. 16 (1): 82. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station and Funk Bros. Seed Company.)

\_\_\_\_\_ The Influence of Temperature upon the Metabolism and Expression of Disease Resistance in Selfed Lines of Corn. Jour. Amer. Soc. Agron. 18 (4): 314-322, figs. 1-4. April, 1926. (Paper read as a part of the symposium on "The Present Status of Corn Improvement" at the meeting of the Society held in Chicago, Ill., Nov. 16, 1925.) (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station and Funk Bros. Seed Company.)

Fellows, Hurley. The Influence of Carbon Dioxide and Oxygen on the Growth of Ophiobolus graminis in Pure Culture. (Abs.) Phytopath. 16 (1): 81. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin and Kansas agricultural experiment stations.)

Hoffer, G. N. A Simple Test for Detecting the Nutrient Needs of Corn Plants. (Abs.) Jour. Amer. Soc. Agron. 18 (1): 29-31. January, 1926. (Abstract of paper presented as a part of the symposium on "Methods and Relations in Extension Work in Agronomy" at the meeting of the Society held in Chicago, Ill., Nov. 16, 1925.) (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Purdue University

\_\_\_\_\_ Some Differences in the Functioning of Selfed Lines of Corn under Varying Nutritional Conditions. Jour. Amer. Soc. Agron. 18 (4): 322-334, figs. 1-7. April, 1926. (Paper read as a part of the symposium on "The Present Status of Corn Improvement" at the meeting of the Society held in Chicago, Ill., Nov. 17, 1925.) (Cooperation between Office of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)



Hoffer, G. N. A Simple Test for Detecting the Plant-Food Needs of Corn Plants. Amer. Fert. 64 (13): 74-75. June 26, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Testing Corn Stalks Chemically to Aid in Determining Their Plant Food Needs. Purdue Univ. Agr. Expt. Sta. Bul. 298: 2-31, pls. 1-2, figs. 1-15. May, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Holbert, James R., Chas. S. Reddy and Benjamin Koehler. Seed Treatments for the Control of Certain Diseases of Dent Corn. (Abs.) Phytopath. 16 (1): 82-83. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Funk Bros. Seed Company and the Illinois Agricultural Experiment Station.)

Johann, Helen, J. R. Holbert and James G. Dickson. A Pythium Seedling Blight and Root Rot of Dent Corn. (Abs.) Phytopath. 16 (1): 85. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station and the Funk Bros. Seed Company.)

Jones, L. R., James Johnson and James G. Dickson. Wisconsin Studies upon the Relation of Soil Temperature to Plant Disease. Wis. Agr. Expt. Sta. Research Bul. 71: 1-144, figs. 1-59. November, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station in the study of imperfect and sac fungi on cereals.)

Leukel, R. W., James G. Dickson and A. G. Johnson. Seed Treatment Experiments for Controlling Stripe Disease of Barley. Phytopath. 16 (8): 565-576. August, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

McKinney, H. H. and R. J. Davis. Influence of Soil Temperature and Moisture on Infection of Young Wheat Plants by *Ophiobolus graminis*. Jour. Agr. Research 31 (9): 827-840, pl. 1, figs. 1-7. November 1, 1925. (Received Jan. 26, 1926.) (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Melchers, L. E. and M. C. Sewell. The Effect of Tillage, Fertilizers, and Rotations on the Spread of Wheat Foot-Rot. (Abs.) Phytopath. 16 (1): 81. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Reddy, C. S., J. R. Holbert and A. T. Erwin. Sweet Corn Treatment in 1925. (Abs.) Phytopath. 16 (1): 65. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Bloomington (Ill.) Canning Co., and the Iowa Agricultural Experiment Station.)

Reddy, C. S., J. R. Holbert and A. T. Erwin. Seed Treatments for Sweet-Corn Diseases. Jour. Agr. Research 33 (8): 769-779, figs. 1-4. Oct. 15, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Bloomington (Ill.) Canning Co., and the Wisconsin and Iowa agricultural experiment stations.)

Webb, Robert W. and Hurley Fellows. The Growth of Ophiobolus graminis Sacc. in Relation to Hydrogen-Ion Concentration. Jour. Agr. Research 33 (9): 848-872, figs. 1-8. November 1, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

### Virus Diseases

McKinney, H. H. Factors Affecting the Properties of a Virus. (Phytopath. Notes.) Phytopath. 16 (10): 753. October, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

\_\_\_\_\_ Virus Mixtures That May Not Be Detected in Young Tobacco Plants. (Phytopath. Notes.) Phytopath. 16 (11): 893. November, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

\_\_\_\_\_ and R. W. Webb. The Dilution Method, as a Means for Making Quantitative Studies of Viruses. (Abs.) Phytopath. 16 (1): 66. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

### Rusts

Allen, Ruth F. Cytological Studies of Forms 9, 21, and 27 of Puccinia graminis tritici on Khapli Emmer. Jour. Agr. Research 32 (3): 701-725, pls. 1-9. April 15, 1926. (Cooperation between Office of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

\_\_\_\_\_ A Cytological Study of Puccinia triticina Physiologic Form 11 on Little Club Wheat. Jour. Agr. Research 33 (3): 201-222, pls. 1-9. August 1, 1926. (Cooperation between Office of Cereal Crops and Diseases and the California Agricultural Experiment Station.)

Dietz, S. M. Response of the Genus Rhynchospora to Puccinia coronata Corda. (Abs.) Iowa Acad. Sci. Proc. (1924) 31: 130-131. [1926] (Cooperation between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

\_\_\_\_\_ Breeding Oats Resistant to Puccinia graminis avenae. (Abs.) Iowa Acad. Sci. Proc. (1924) 31: 131. [1926] (Cooperation between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)



Dietz, S. M. The Effect of the Alternate Hosts on Physiologic Forms. (Abs.) Phytopath. 16 (1): 83-84. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Alternate Hosts of *Puccinia coronata* II. (Abs.) Phytopath. 16 (1): 84. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

The Alternate Hosts of Crown Rust, *Puccinia coronata* Corda. Jour. Agr. Research 33 (10): 953-970, figs. 1-4. November 15, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Hart, Helen. Factors Affecting the Development of Flax Rust, *Melampsora lini* (Pers.) Lev. Phytopath. 16 (3): 185-205, figs. 1-2. March, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Henry, A. W. Inheritance of Immunity from *Melampsora lini*. (Abs.) Phytopath. 16 (1): 87. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and Office of Fiber Plants and the Minnesota Agricultural Experiment Station.)

Flax Rust and Its Control. Minn. Agr. Expt. Sta. Tech. Bul. 36: 3-20, pls. 1-2, March, 1926. (Cooperation between Office of Cereal Crops and Diseases and Office of Fiber Plants and the Minnesota Agricultural Experiment Station.)

Flax Rust, a Preventable Disease. Minn. Agr. Expt. Sta. Spec. Bul. 109: 3-8, figs. 1-3. May, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Lambert, E. B. and E. C. Stakman. Effect of Sulfur on the Development of Black Stem Rust of Wheat in a Natural Epidemic. (Abs.) Phytopath. 16 (1): 64-65. January, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Mains, E. B. Rye Resistant to Leaf Rust, Stem Rust, and Powdery Mildew. Jour. Agr. Research 32 (3): 201-221, pls. 1-6. February 1, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

Studies in Rust Resistance. Jour. Heredity 17 (9): 313-325, figs. 1-6, frontispiece. September, 1926. (Invitation paper read at the joint meeting of Section O, American Association for the Advancement of Science and the American Phytopathological Society, at Kansas City, Mo., Dec. 31, 1925.) (Cooperation between Office of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station and the Kansas Agricultural College.)

Mains, E. B. and H. S. Jackson. Physiologic Specialization in the Leaf Rust of Wheat, Puccinia triticina Erikss. Phytopath. 16 (2): 89-120, pls. 6-9. February, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

\_\_\_\_\_, C. E. Leighty and C. O. Johnston. Inheritance of Resistance to Leaf Rust, Puccinia triticina Erikss., in Crosses of Common Wheat, Triticum vulgare Vill. Jour. Agr. Research 32 (10): 931-972; pls. 1-5. May 15, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Indiana and Kansas agricultural experiment stations.)

#### Barberry Eradication

Bulger, Raymond O. Black Stem Rust and the Common Barberry in South Dakota. S. Dak. Agr. Col. Ext. Serv. Circ. 240: 2-23, figs. 1-13. June, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Extension Service of the South Dakota State College of Agriculture and Mechanics Arts.)

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## WESTERN WHEAT INVESTIGATIONS

(J. Allen Clark, Agronomist in Charge, and K. S. Quisenberry, Assoc. Agronomist)

### Numbering Hybrid Selections

In the Western Wheat Investigations Project serial numbers have been assigned to wheat crosses made by both project and field workers from 1916 onward. The serial number is preceded by the last two numerals of the year in which the cross was made. The first cross made in 1916, Pacific Bluestem x Baart, therefore, was given the number 161. The cross of Hard Federation x Kota, made in 1920, received the number 20149. The last number, assigned in 1926, is 26421. In the 11-year period, therefore, 421 crosses have been made and recorded.

To the cross number thus composed is added the letter A, B, or C, etc., to designate the individual head or plant from which crossed kernels were obtained. Following the letter, and separated by a dash, there is added a number which represents the individual  $F_1$  plants. For example, numbers 20149A-1 and 20149A-2 indicate two  $F_1$  plants grown from crossed kernels produced in the same head. (A), of cross 149 made in 1920. A dash and plant number then are added in each succeeding generation or when selections are made. Actual records from the Hard Federation-Kota cross 20149A-2-55-2-2 may be used to illustrate the present system. The number -55 indicates that the 55th  $F_2$  plant was selected to continue in the  $F_3$  generation. Finally, the second and the third -2 show that selections were made again in  $F_3$  and  $F_4$  or later generation, and plant number 2 was continued. This system of numbering gives a complete record of the history of each strain and facilitates tracing back in the records for any desired data.

When desirable hybrid strains become homozygous, or apparently so, they are put into replicated rod-row nurseries and tested for yield. By this time the long and complex series of numbers become very cumbersome to use in both the field and office. Slight errors in copying are hard to prevent as many of the numbers are very nearly alike, as, for example, 20149A-1-25-2-2 and 20149A-2-55-2-2.

It seems desirable, therefore, to use a new series of numbers for the hybrid selections as they are advanced to the replicated nursery rows. Cereal Investigations (C. I.) numbers could be used, and have been in some cases. However, C. I. numbers for wheat are now above 8,200 and it is felt that their further use should be restricted to varieties, to introductions, and to such hybrid strains or selections as show the greatest promise and therefore are promoted to plat trials. Most of the hybrid strains advanced to rod rows are discarded, and it is not desirable to assign C. I. numbers to hundreds of strains which may be grown for only one year and then discarded.

It is proposed to assign Nursery Numbers to all new hybrid strains advanced to replicated row tests. These nursery numbers will replace the cross numbers and will begin with 1 and continue consecutively. For example, Hard Federation x Kota 20149A-1-25-2-2 may be designated as Hard Federation x Kota, Nursery No. 87. A complete record of the cross number will be made when each nursery number is assigned. When hybrid selections are advanced to plot experiments, C. I. numbers will be assigned to them.

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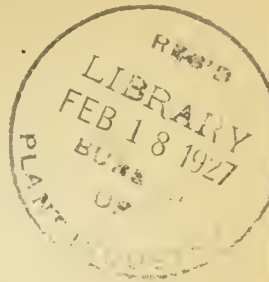
1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (1) and (2) for arbitrary values of the parameters  $\alpha$  and  $\beta$ . It is shown that the system has solutions for all values of the parameters  $\alpha$  and  $\beta$  if the function  $f(x)$  is continuous and has a bounded derivative. The second part of the paper is devoted to a detailed study of the properties of the solutions of the system (1) and (2) for arbitrary values of the parameters  $\alpha$  and  $\beta$ . It is shown that the solutions of the system (1) and (2) are unique and depend continuously on the parameters  $\alpha$  and  $\beta$ . The third part of the paper is devoted to a study of the asymptotic properties of the solutions of the system (1) and (2) for large values of the parameters  $\alpha$  and  $\beta$ . It is shown that the solutions of the system (1) and (2) approach zero as the parameters  $\alpha$  and  $\beta$  approach infinity.



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C E R E A L   C O U R I E R

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 19

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February 15, 1927

Personnel (Feb. 1-15) and Field Station (Jan. 16-31) Issue

PERSONNEL ITEMS

Raymond O. Bulger, State Leader of barberry eradication in South Dakota, is spending the winter months at the University of Minnesota in assisting E. B. Lambert to assemble data on stem rust epidemiology under the direction of Dr. E. C. Stakman, agent in the cooperative cereal-disease investigations. Mr. Bulger also is working on a problem dealing with the effects of freezing on the germination of urediniospores of Puccinia graminis triticina, Puccinia triticina, Puccinia graminis avenae, and Puccinia coronata.

Miss Mary L. Martini, assistant botanist in barley investigations, will leave Washington about February 20 for Sacaton, Ariz., to take notes on barley in the cooperative barley nursery at the United States Field Station. On the completion of this work Miss Martini will proceed to Aberdeen, Idaho, to take notes on barleys in the cooperative barley nursery at the Aberdeen Substation. She also will consult officials of the Utah Agricultural Experiment Station, Logan, Utah, regarding cooperative cereal experiments.

Arthur F. Swanson, assistant agronomist in charge of the cooperative cereal experiments at the Fort Hays Branch Station, Hays, Kans., is spending part of the winter at Manhattan, Kans., in conference with officials of the agronomy department of the Kansas State Agricultural College, and in the preparation of his annual report on the Hays experiments and a manuscript for publication. Mr. Swanson will return to Hays for the opening of the spring field operations.

## VISITORS

Dr. R. S. Kirby, extension pathologist at the Pennsylvania State College, State College, Pa., was an Office visitor on February 12.

Viggo H. Nielsen, of the Royal Veterinary College, Copenhagen, Denmark, who has been pursuing graduate studies in plant breeding at the University of Minnesota for the past one and one-half years on a fellowship of the "Ländbrugets Studiefond" of Denmark (Agricultural Study Foundation), was an Office visitor on February 11, conferring with specialists on the breeding of oats, wheat, etc. Mr. Nielsen recently completed his studies at the University of Minnesota, receiving the M. S. degree. He will return very soon to his own country.

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MANUSCRIPTS AND PUBLICATIONS

7 A manuscript entitled "Loose Kernel Smut on Feterita," by J. H. Martin and G. T. Ratliffe, was approved February 1 for publication in the section "Phytopathological Notes" in Phytopathology.

8 A manuscript entitled "The Productiveness of Corn as Influenced by the Mosaic Disease," by Hugo F. Stoneberg, was submitted February 4 for publication as a Department Bulletin. (The investigations reported were conducted in cooperation with the Louisiana Agricultural Experiment Station.)

9 A manuscript entitled "Smuts of Wheat and Rye, and Their Control," by V. F. Tapke, was submitted February 5 for publication in the Farmers' Bulletin series.

A revision has been requested of Farmers' Bulletin 1062 "Buckwheat," by Clyde E. Leighty.

Galley proof of Department Bulletin 1481 entitled "Experiments with Fall-Sown Oats in the South," by T. R. Stanton, R. R. Childs, J. W. Taylor, and F. A. Coffman, was read February 7.

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## FIELD STATION CONDITION AND PROGRESS

### HUMID ATLANTIC COAST STATES (South to North)

#### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)  
(January 19)

The recent cold weather apparently has not damaged fall-sown oats very much in this section. It is believed that the crop was somewhat protected by the dryness of the soil. It is evident that winterkilling depends somewhat on the quantity of moisture in the soil at time of freezing. In a very wet soil fall-sown oats often are killed at temperatures that do no damage when the soil is fairly dry.

#### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney, and R. W. Webb)

#### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love) (February 2)

The weather during the early part of the winter and up until recently has been favorable to fall-sown grain. At present, however, in this part of the State much of the snow has melted and the grain is unprotected. Ice sheets have formed in some low fields. If the condition remains long, naturally there will be considerable injury.

The first-generation hybrids and the plants grown for making new crosses, as well as the plants grown for cytological studies, are making very satisfactory growth and will furnish plenty of material for the various studies. The work at present consists of cleaning various seed lots preparatory to spring sowing, and weighing and preparing the seed. We also are collecting considerable data on our hulled-hull-less crosses of oats. This note-taking requires a great deal of time because the samples must be picked off and studied a kernel at a time. These studies are proving to be very interesting, however, particularly with respect to the nature of the hulled-hull-less condition.

Just at present we are preparing for our Annual Farmers' Week. A large exhibit, including our various small-grain varieties, will be available to farmers, and a number of lectures on this subject have been prepared.

We have a large number of graduate students this year, and the seminar for the first half of the year has been devoted to the general subjects of field plot technique, experimental error, and the like. Unusual interest has been manifested, and the whole subject has created much discussion.

#### HUMID MISSISSIPPI VALLEY STATES (South to North)

##### LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

##### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

##### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

##### IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

##### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)



## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (February 3)

An active educational campaign is being conducted in the schools of Minnesota. Lesson plans have been sent so far to all the rural teachers in 24 counties as well as to all instructors in agriculture, biology, and normal training and to principals of consolidated schools. Requests are being received almost daily for additional material. In the counties where lesson plans are being supplied to rural teachers, news articles are being sent to every newspaper, announcing the fact that children are being shown the relation of common barberry to black stem rust. Publicity also is being stressed. At the present time a demonstration is installed on the "Better Seed Grain Special," a train that stops at almost every railroad town in the northwestern part of the State. Some one is in constant attendance to explain the demonstration. Next week a barberry demonstration will be installed at the Red River Valley Show at Crookston. This is the outstanding agricultural show in the spring-wheat section. On February 7 the present status of the barberry-eradication campaign will be presented to the whole group of Minnesota agricultural extension specialists. Preparations also are being made for the spring campaign.

#### GREAT PLAINS AREA (South to North)

##### OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)

##### KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Farker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C.O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

##### COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

##### NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, G. F. Sprague)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel) [January 31]

The barberry educational campaign was continued in the schools during the month of January. Boxes containing specimens of the different spore stages of stem rust, specimens of common barberry, colored plates, and bulletins were sent to 707 high schools in the fall of 1926. Similar boxes are being sent to all private and denominational academies and colleges, State normal schools, and universities. We did not collect enough specimens of the red stage of stem rust last summer and therefore are now producing it in the greenhouse by hand inoculations.

The many letters that have been received from the teachers indicate that the material is very much appreciated.

News articles containing a summary of the progress of barberry eradication, and numerous illustrations, have been submitted and accepted by the Nebraska Farmer and the Cornhusker Countryman. A descriptive paragraph will be published in the new weed bulletin which is being prepared by the State Department of Agriculture. A radio talk on "Barberry Eradication--A Means of Reducing Stem Rust Losses" will be given February 16 at 8:05 p.m., from Station KFAB, Lincoln, Nebr.

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue) (February 1)

Educational and publicity activities of the barberry-eradication campaign have been given considerable impetus in North Dakota since the middle of October as the result of excellent cooperation on the part of various State agencies.



The North Dakota Retail Merchants' Association has published two circulars. One is entitled "A Message to North Dakota Boys and Girls" and deals almost entirely with the subject of barberry eradication. Copies have been distributed by the merchants to the boys and girls of the State. The other circular deals with the importance of barberry eradication to the people, especially the merchants, of North Dakota. It has been mailed by the Association to all the merchants of the State.

In addition to the educational material furnished by the Association, talks and demonstrations have been made at each of 10 district meetings of the merchants. These meetings were very well attended by the leading merchants, farmers, bankers, and others.

The State Department of Public Instruction has given excellent cooperation by arranging for talks and demonstrations at county teachers' institutes, the annual convention of county superintendents, city and rural schools, and the State educational institutions of higher learning. Demonstrations and talks also have been made at a number of State and local club meetings.

A permanent demonstration is rapidly becoming one of the high lights of the educational exhibits that are on display in the State capital. It is visited daily by people from all over North Dakota and from other States.

One of the State teachers' colleges is helping in the preparation of a lesson plan on barberry eradication. When completed this plan will be a required part of the training work of the school. It is expected that other State teachers' colleges will follow this lead.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)<sup>1/</sup>  
(January 1)<sup>1/</sup>

A study of the weather records for the past year shows that the mean temperature was considerably above normal in January, February, March, and May, and considerably below normal in September, November, and December. The mean for the year was 41.4 degrees, or about 1 degree above normal. The greatest deficiency in temperature occurred in December, which averaged 10.3 degrees, or about 7 degrees lower than normal. The last half of December was comparatively calm, and clear weather prevailed with normal temperatures. Snow has covered the ground for six weeks and while about 8 inches deep at one time now has settled to about 4 inches, although still badly drifted in places.

<sup>1/</sup> This report was inadvertently omitted from the Cereal Courier of  
~~December 31, 1926.~~

*Jan. 15, 1927*

The total precipitation for the past year was 13.04 inches, or about 2.40 inches less than normal. This deficiency was made worse by a lack of stored moisture in the soil, the preceding fall having been extremely dry. As a result of these conditions and of the very hot weather in July, the crop yields at the Substation in 1926 were the lowest obtained, with the exception of a few years. The corn yields, considering both grain and stover, were the lowest ever obtained here, the yield of shelled corn averaging about 3 bushels to the acre for the varieties, whereas the average yield of 12 varieties for the past five years has been about 25 bushels per acre.

Jack rabbits are extremely numerous in this vicinity, and in some cases are doing considerable damage by gnawing shrubs and trees and in making in-roads on stacks of alfalfa.

Several requests for seed of Ceres wheat have been received. Seed grown on a 14-acre increase field of this variety is being cleaned now.

The Substation was visited in the past month by Director P. F. Trowbridge of the North Dakota Agricultural Experiment Station, by the State Board of Administration, and by the State Budget Board.

(January 17)

Mild weather prevailed during the first 10 days of January, with a maximum temperature of 40 degrees for the first two days. A minimum of 16 degrees below zero was reached on January 13. About an inch of snow has fallen and about 0.10 inch of rain fell early in the month. The snow had thawed until the winter-wheat nursery was almost bare. Since then the nursery has been covered with an inch or more of snow. The average wind velocity from January 1 to 16 was 6.3 miles per hour.

The following average yields of shelled corn have been obtained from some of the leading varieties grown at the Substation:

Variety and Group	Average Acre Yield (Bushels)	
	8 years, 1919-26	5 years, 1922-26
<u>Flint</u>		
Dakota White	25.6	31.6
Gehu	24.8	28.8
Mercer	19.9 <sup>1</sup> / <sub>2</sub>	23.0
Mandan (Boley)	----	31.9
Rainbow	----	24.3
<u>Flour Corn</u>		
Ivory King	----	29.0
<u>Semi-dent</u>		
Northwestern	23.2	26.3
<u>Dent</u>		
Payne White	22.0 <sup>1</sup> / <sub>2</sub>	25.2
Minnesota No. 13	18.3	20.5
Rustler White	17.6 <sup>1</sup> / <sub>2</sub>	20.2
Burda	----	22.8
Golden Glow	----	20.7

<sup>1</sup>/<sub>2</sub>Yield for one year estimated from that of other varieties.

(February 2)

The temperature of the month of January varied considerably. It did not fall below zero until the morning of the 13th. The weather was very mild early in the month, and the ground was becoming bare when snow fell for several days and cold weather set in which prevailed until the last few days of the month. A minimum of 33 degrees below zero was reached on the 21st, and the temperature was below zero all the time from the morning of the 17th to the morning of the 22d. A maximum of 40 degrees was reached on four days. With the exception of a few windy days the air was calm most of the time, the wind velocity averaging 6.3 miles per hour for the month. The total snowfall was about 4 inches and the rainfall 0.08 inch, making slightly more than the normal precipitation for the month. The mean temperature was 12.4 degrees, which is about 2 degrees above normal.

The winter-wheat nursery still is covered with a few inches of snow, although it was almost bare for a week or ten days during the warm weather early in the month. The plots of winter grain in standing cornstalks have been well covered with snow since the last week in November.

The cleaning of about 200 bushels of Ceres wheat for seed has just been completed. A small quantity of seed corn also has been shelled and graded. Home-grown seed corn is scarce this year, and that which is available will sell for fancy prices.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus)

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, R. W. May)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

#### WESTERN BASIN AND COAST AREAS (North to West and South)

#### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

#### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)



## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(January 28)

There have been two periods of extremely cold weather in Eastern Oregon this winter. The first was from December 13 to 17, when the lowest temperature was 6 degrees below zero. There was a light snow covering so that very little damage was done to fall-sown grains. The second cold spell occurred between January 15 and 26, when a temperature of 15 degrees below zero was reached. This cold weather was accompanied by a heavy snowfall, which, in some localities, drifted badly. The weather is warmer now. Because of the snow covering at the time of the cold weather it is probable that not much grain was injured.

The precipitation for the late fall and winter months thus far has been considerably above normal. The rainfall for November was 4.24 inches, the highest for that month since records have been kept. The total precipitation for the calendar year 1926 was 12.74 inches. The precipitation from September 1 to December 1, 1926, was 6.92 inches, and already there have been more than 2 inches of precipitation in January, mostly in the form of snow.

Sherman County Branch Station, Moro (Cereal Breeding, B. B. Bayles)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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February 3, 1927

B.P.A. Circular No. 56

Reinstatement of Lapsed War Risk Insurance

The President, by Proclamation dated January 11, 1927, has designated the period January 31 to February 7, 1927, as a time during which special effort should be made to inform all veterans of the World War of the right they have to reinstate lapsed war risk life insurance, and to convert it into United States Government life insurance. Heads of offices both in Washington and the field should take steps to inform veterans under their direction that the opportunity to reinstate war risk life insurance now exists but that the right will lapse after July 2, 1927. After that date such war risk term insurance can not be reinstated. Veterans desiring to take action towards reinstatement of their war risk insurance should be instructed to obtain detailed information from the central office of the United States Veterans Bureau, Washington, D. C., or from any of its regional offices located throughout the country.

W. W. Stockberger (Signed)

Director of Personnel and Business Administration.

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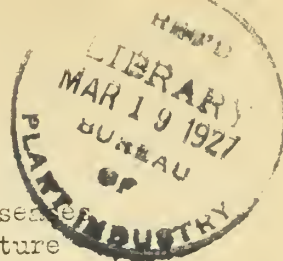




17

CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 19

No. 4

February 28, 1927  
Personnel (Feb. 16-28) and Project Issue

PERSONNEL ITEMS

B. B. Bayles, formerly junior agronomist in charge of cereal breeding at the Sherman County Branch Station, Moro, Oreg., has been transferred to Moccasin, Mont., where he has succeeded R. W. May, formerly assistant agronomist in charge of the cereal experiments at the Judith Basin Substation. Mr. Bayles arrived at Moccasin on February 18 and on the 21st moved into the house formerly occupied by Mr. May. As soon as Mr. May has finished his annual report for the past year and discussed station matters and problems with Mr. Bayles he will go to the North Platte Substation, North Platte, Nebr., to look after Mr. Sprague's work for the remainder of the year.

Dr. Ernest Dorsey, of the plant breeding department of the Cornell University Agricultural Experiment Station, Ithaca, N. Y., and agent in the co-operative plant breeding work, came to Washington on February 23 for conferences with officials of the Department and to collect plant material for cytological studies.

Dr. A. G. Johnson, senior pathologist in charge of cereal-disease investigations, will leave Washington on February 28 for Bloomington and Urbana, Ill., where he will confer with employees of the Office and officials of the Illinois Agricultural Experiment Station concerning cereal-disease investigations and the revision of manuscripts for publication. He will return to Washington about the middle of March.

Dr. C. S. Reddy, agent in the cooperative cereal-disease investigations conducted with the Iowa State College of Agriculture, at Ames, Iowa, will spend a week beginning March 1 at Bloomington, Ill., to assist in the revision of cooperative manuscripts on corn seed treatment.

Mrs. Elsie C. Young, assistant clerk, resigned her position on February 15 and Miss Burnis Benson was transferred from the Office of Plant Disease Survey to fill the vacancy.

## VISITORS

L. A. Fitz, in charge of the Chicago office of the Grain Futures Administration, U. S. Department of Agriculture, was an Office visitor on February 17.

John L. Richardson, agent in the barberry eradication campaign in Illinois for the past three summers, was an Office visitor February 15. Mr. Richardson is now connected with the National Farm News of Washington, D. C.

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## MANUSCRIPTS AND PUBLICATIONS

10 A manuscript entitled "An Emendation of the Description of Ophiobolus heterostrophus," by Charles Drechsler, was approved February 12 for publication in Phytopathology under Phytopathological Notes.

11 A manuscript entitled "Changes in the Composition of Juice from the Wheat Plant during Certain Stages of Development, as Shown by Titration Curves," by A. M. Hurd-Karrer, was approved February 23 for publication in the Journal of General Physiology.

12 A manuscript entitled "Reduce Stem-Rust Losses by Barberry Eradication," by A. F. Thiel, was submitted February 24 for publication as a cooperative circular of the University of Nebraska College of Agriculture Extension Service.

Galley proof of three articles for publication in the Yearbook of the United States Department of Agriculture was read February 21. The titles are as follows:

Breeding Wheats Resistant to Leaf Rust, by C. E. Leighty.

New Methods in Corn Breeding, by F. D. Richey.

Some Phases of Stem Rust Specialization, by E. C. Stakman.

Galley proof of article entitled "Breeding Wheat for Resistance to Physiologic Forms of Stem Rust," by O. S. Aamodt, for publication in the Journal of the American Society of Agronomy, was read February 23.

Galley proof of article entitled "Breeding Plants for Disease Resistance," by C. E. Leighty, for publication in the Journal of the American Society of Agronomy, was read February 25.

## Erratum

Through error the manuscript entitled "Smuts of Wheat and Rye, and Their Control," was listed in the Cereal Courier of February 15, 1927, minus the name of its senior author. The authors are: W. H. Tisdale and V. F. Tapke.



REPORT OF PROGRESS IN BARBERRY ERADICATION FOR THE CALENDAR YEAR ENDED  
DECEMBER 31, 1926

By

F. E. Kempton, Assoc, Pathologist in Charge, and Lynn D. Hutton, Assoc.  
Pathologist

INTRODUCTION

In the nine years that the barberry-eradication campaign has been in progress more than 14,300,000 common barberries have been eradicated. This is a monumental record of plant-pest eradication.

The removal of these bushes has aided materially in reducing stem-rust losses of small grains. In the eastern States of the barberry-eradication area positive control of local epidemics of stem rust has resulted from the removal of the harmful barberries. A material reduction of the stem-rust losses from destructive epidemics in the spring-wheat States has followed the eradication of common barberries. In many localities in these more western States positive control has been effected.

The publicity activities have acquainted the public with the purpose and progress of the campaign and have resulted in gaining its confidence and cooperation. As a result, the owners and occupants of the properties on which barberries were found have given whole-hearted cooperation in survey and eradication. In many instances, valuable services in labor and chemicals for eradication have been given.

Educational activities in the grade schools, high schools, and colleges are being emphasized. The younger generation is being taught to know black stem rust and its relation to the common barberry. As a result of this educational program, future citizens are being trained to know and eradicate the harmful barberries and to prevent their reintroduction.

The results are only temporary, however, unless the campaign is carried to its satisfactory conclusion. A great many more barberries remain in the 13 States which comprise the eradication area. The preliminary survey has not yet reached 57 of the 920 counties it is necessary to survey. Only 209 counties have been covered by the second more intensive survey. Continued resurveys will be necessary to find and eradicate seedlings and sprouting bushes.

## ORGANIZATION AND FUNDS

The barberry-eradication campaign is conducted by the Office of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, in cooperation with 13 north-central, grain-growing States. These are Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming.

In each State, a State Leader and a corps of field agents carry out the various field operations. Collaborators, agents, and cooperators in the experiment station and extension divisions of the Agricultural Colleges and in the State Departments of Agriculture, and other interested organizations, aid in the eradication, investigational, and educational activities.

In 1926, there were used 46 full-time employees and 253 part-time agents in conducting the campaign. The field agents are employed during the summer months. Men with two or more years of college training in agriculture or related subjects usually are selected. Training in plant pathology, agronomy, or botany is required. Special attention is given to procuring men who not only are adequately trained but who have a real interest in the work. They also must have a correct ethical attitude toward scientific accuracy and honest public service. Men specially trained in news writing and publicity are valuable aids to the State Leaders in promoting the educational phases of the campaign. A premium is put on experience and ability. The more mature men with longer experience and proved ability in barberry eradication and in teaching agriculture are retained for several summers when possible.

All field men are required to master the necessary details of the scientific facts concerning stem rust and the common barberry. These men also must be able to identify other rusts of grains and to recognize barberries of all ages and sizes, in any environment. Training is given in methods of procedure in survey and eradication and in making contacts with property owners, officials, and business men.

Supervision in the field is under the direction of the State Leader in each State. An assistant leader aids in field supervision in some States. Squad leaders are placed in charge of small groups and are responsible for survey and eradication in the areas assigned to each squad. If an agent trained in newspaper writing and publicity is available, he promotes the publicity and educational phases under the direction of the State Leader, in cooperation with squad leaders.

## Cooperation

Cooperation is had with the State Agricultural Colleges of all the above-named States and the State Departments of Agriculture of most of them. The Conference for the Prevention of Grain Rust provides funds and personnel for aiding in publicity and educational activities and establishing contacts with commercial, agricultural, and State organizations. This Conference is an organization composed of representatives of commercial, agricultural, educational, and investigational organizations of the 13 States.

State and county superintendents of public instruction; professors and instructors in universities, colleges, and normal schools, supervisors of teachers, and the teachers themselves in these States cooperate in the movement to teach the story of stem-rust control by barberry eradication to the rising generation.

Commercial organizations and local farm organizations, county agricultural agents and club leaders, State and county crop reporters, State, county, and township weed-control officials and the thousands of property owners whose properties are inspected for barberries usually cooperate whole-heartedly in the campaign.

## Finances

The annual Federal appropriation for the fiscal year ending June 30, 1927, is \$375,000. This is the same as for the past fiscal year. Of this amount, \$75,000 became available only on the certification of contributions totaling an additional \$75,000 by interested agencies in the 13 cooperating States. The total aid furnished in cash and services by State and other agencies for the present fiscal year is larger than the amount required to be certified and is estimated at approximately \$88,000. Federal funds totaling \$2,567,715 have been appropriated and allotted during the period from April 1, 1918, to June 30, 1927. State and other interested agencies have allotted approximately \$652,837 in funds and services. This makes a total of \$3,220,602 allotted to this campaign to June 30, 1927. Approximately \$3,068,000 of Federal and State contributions combined has been expended to December 31, 1926.

## INVESTIGATIONS

Three investigational phases of the barberry-eradication campaign are carried forward. These are (1) stem-rust epidemiology studies, (2) classification of barberry species, varieties, and hybrids, and (3) the inoculation of barberry species, varieties, and hybrids with stem rust.



### Stem Rust Epidemiology Studies

Under the supervision of Dr. E. C. Stakman, Agent, University Farm, St. Paul, Minn.; stem-rust epidemiology studies are being carried forward each year. These stem-rust studies include the investigation of the sources, time of appearance, prevalence, and spread of stem rust, and estimates of the damage done to small grains. These studies help to determine the aid rendered by barberry eradication in reducing stem-rust losses of small grain. Through these studies, the effect of barberries as local sources of stem rust is traced and the general stem-rust conditions in local areas of each State from year to year are determined. Information also is obtained as to stem-rust conditions in groups of States and in the whole United States.

The early appearance of stem rust on barberries, its subsequent spread to near-by grains and grasses, and its later spread in the form of more widespread epidemics are correlated as far as possible. Hundreds of instances of the spread of rust from common barberries to grains and grasses have been recorded. Many have been added during the past year. The members of the barberry-eradication force cooperate closely in this work. State collaborators and cooperators of the barberry-eradication States and of the surrounding States and Canada make observations and furnish data. The Office of Mycology and Disease Survey, Bureau of Plant Industry, U. S. Department of Agriculture, through collaborators in each State, collects and furnishes estimates of the losses from stem rust.

Farmers in many localities give valuable information concerning the occurrence of stem rust each year on individual farms. These reports are investigated. In many instances the harmful barberries have been located and eradicated. Through the reports of severe local outbreaks of stem rust in fields of grain, it has been possible to locate many scattered barberries and seedlings that have grown up along ditches, fence rows, and in near-by woodlands that would have been difficult to find by other means.

Invariably when all barberries are eradicated from local areas, stem rust ceases to be a serious menace to the growing of small grains. It is true that, in some of these areas, a late general spread of stem rust occurs in epidemic years, but the severe damage formerly caused by local barberries does not occur.

### Classification of Barberry Species, Varieties, and Hybrids

A Berberis collection is being assembled at Bell, Maryland, by Mr. B. Y. Morrison, Associate Horticulturist. The Office of Horticulture and the Office of Cereal Crops and Diseases cooperate in the assembling, growing, and studying of this collection. An attempt is made to include the various species, varieties, and hybrids that are grown or are likely to be grown in the United States. These are studied, described, illustrated, and classified. Plants of species of unknown reaction to stem rust are propagated and sent to St. Paul, Minn., where this susceptibility is studied.

The following is a brief summary of Mr. Morrison's report for 1926:

The work at Bell [Maryland] has been furthered by the cooperation of the Office of Foreign Plant Introduction through which office seed has been secured from the Royal Botanic Gardens at Kew, England, and Edinburgh, Scotland, of all species of barberries in those collections which are not represented already in our collection. Through them seed was obtained also from the Vilmorin Arboretum and from M. Pardé, Director of the Forestry School, at Les Barres, France. The Bell collection now contains 85 good species, 23 dubious species, and 11 hybrids of known parentage.

From the one-year potted plants and the nursery 333 plants of 43 species were sent to University Farm, St. Paul, Minn.

Sheets of illustrations are being prepared showing the life history of the different species from germination to fruiting. In this way it is possible to record very conspicuously the range of variations in the different stages of the plant's life.

The work on the material for the monograph progresses, but is much more complete in some sections of the genus than in others.

### Inoculation of Barberry Species, Varieties, and Hybrids with Stem Rust

The common barberry (Berberis vulgaris L.) and its horticultural varieties are not the only barberries that may carry and spread stem rust. The barberries known to be susceptible to this disease were listed by E. C. Stakman and M. N. Levine in "A Partial Report on the Susceptibility and Resistance of Berberis and Related Genera to Stem Rust," Cereal Courier 15: 278-287, September 30, 1923.

The investigation of the susceptibility of other barberries to stem rust is now carried forward by Mr. Ralph U. Cotter. In his report of December 31, 1926, 130 species, varieties, and hybrids are listed as on hand at University Farm, St. Paul, Minn. Of some, there is only one plant; of others, there are several. In 1925, seven species or varieties of barberries were first reported as infected. In 1926, 11 others were reported infected for the first time. The infections in 1926 resulted from 206 series of inoculations of various species and varieties of barberries with stem rust. The ones that failed to become infected on the first trial were inoculated several times, using telial material of different varieties of stem rust collected in different parts of the country.

The studies on the nature of the resistance of barberries to stem rust also are being continued.

#### PUBLICITY AND EDUCATION ACTIVITIES

Publicity activities always have been an important part of the campaign. Materials designed to inform the public how to identify both the common barberry and the stem rust are a part of all publicity. A special attempt is made to play up items of local importance in each community. Unusual findings of barberries and outstanding examples of the spread of stem rust from barberries are given local and State-wide emphasis. This necessitates an intensive use of news items, demonstrations, exhibits, window displays, radio broadcasts, and talks. Lantern slide series dealing with local and State problems supplement the talks. General and State problems and accomplishments also are shown by news articles, motion pictures, bulletins, circulars, posters, colored plates, and circular letters.

Barberry eradication must be permanent. The future generations should be taught that the common barberry has caused severe damage to small grain in the past and that it must not be allowed to exist or gain a foothold again in grain-growing areas. To accomplish this, the story of stem rust and the barberry is being taught to the rising generation through the public schools. Full cooperation has been volunteered by the State superintendents of public instruction in some States, and the county superintendents of schools are aiding in many counties. State universities, colleges, normal schools, and teachers' colleges are becoming enthusiastic about presenting this story to teachers. Teachers in vocational and other high schools, and in city and country grade schools are being furnished outlines and materials and are cooperating to a large extent in teaching their pupils about stem rust and the common barberry.



A Federal representative of barberry eradication, Mr. Noel F. Thompson, is maintained in the office of the Conference for the Prevention of Grain Rust. This office acts as the clearing house for publicity and education activities and cooperates by furnishing funds, invaluable services, and many materials not otherwise obtainable. Mr. Thompson, in his summary of the publicity and education activities of 1926, reports as follows:

A very satisfying improvement was noted in the publicity and education activities carried on in 1926 over those of preceding years. The results also are becoming increasingly evident, both in the attitude of the public toward the campaign and in the actual aid rendered by individuals whose only contact has been through these activities.

While these activities are correlated through the office of The Conference for the Prevention of Grain Rust, the major portion of the work is carried on directly by the State Leaders, and to them is due full credit for the success of this phase of the barberry-eradication campaign.

The publicity activities are being conducted through newspaper articles, circular letters, demonstrations and exhibits, and radio talks. The preparation of bulletins and circulars and speaking at various public meetings are necessary adjuncts.

The newspaper publicity for the most part was confined to news articles, and these, in general, were given to the local papers in the areas where survey is in progress. Over 1,300 such articles were printed in 1926. In addition, over 120 articles of wider news value were syndicated.

The circular letter, if judiciously used, is very effective publicity. In the past, many of the State Leaders have sent these letters to every farmer in the areas where intensive survey was conducted. These letters, usually accompanied by a bulletin, are sent shortly in advance of the arrival of the field men, paving the way for the survey and making the work much easier and more effective. In 1926, for the first time, all the 13 States used this system, sending out over 147,000 letters.

Letters also are being used to supply up-to-date and reliable information to a number of selected mailing lists. These lists include extension workers, legislators, weed inspectors, prominent and influential farmers, bankers, grain dealers, and other business men. In all, about 40 such lists were used in 1926 and each list was used an average of  $2\frac{1}{2}$  times. Many of these lists will be enlarged and improved.

The demonstration is recognized as a valuable publicity feature and is used regularly in all 13 States. All the squads of field men are supplied with window-display outfits and these are placed in the towns of the areas being surveyed. Field demonstrations are staged where a well-defined spread of rust from a barberry is found. Street corner demonstrations are used in the evenings in some localities. Fair demonstrations or exhibits also are used regularly. During 1926, there were 71 field demonstrations, 322 window demonstrations, 130 street corner and miscellaneous demonstrations, and 126 fair demonstrations, making a total of 719 demonstrations for the year.

The radio was used to some extent in 1926. In addition to flashes sent out from Washington, the State Leaders supplied speakers or subject-matter for nine talks on the common barberry and stem rust.

Five new bulletins or circulars written in whole or in part by the State Leaders were published in 1926. Such publications are of special value since they supply detailed information in regard to the particular conditions within the State. They supplement the more general bulletins and circulars printed in Washington.

The State Leaders or their representatives spoke at 535 meetings in 1926.

Educational instruction about the common barberry and stem rust in the schools is becoming one of the major phases of our publicity and educational activities. Efforts are being made to have the story of black stem rust incorporated into the regular curriculum of as many schools as possible and preliminary efforts are meeting with considerable success. Teachers of rural schools, high schools, normal schools, and colleges are being supplied with study material, usually consisting of a lesson plan, colored charts, bulletins, and specimens of rusted barberries and grains. In many cases, these materials come to the public school teacher through her county or State superintendent of schools. During the school year 1925-26, such material was supplied to over 33,000 teachers as compared with 10,000 for the previous year. Attention is now being directed to the normal schools and other teacher-training schools so that the teacher may learn the story of the rust before reaching her school.

A summary of the publicity and education phases of the barberry-eradication campaign would not be complete without mention of the very important part played by the Conference for the Prevention of Grain Rust, an organization of business men, scientists, and farmers interested in the welfare of agriculture. This organization has supplied much of the demonstration material, such as window-display sets and special fair demonstration attractions. They also have furnished nearly all of the colored materials used in 1926, including colored plates, charts, and post-cards. Large numbers of mounted barberry specimens and considerable direct financial aid also have been furnished. Equally important has been the advice and encouragement received from this Conference.

## SURVEYS

Three surveys are in progress. These are (1) the original or first survey, (2) the second survey, and (3) the resurveys. The first survey is almost completed. Almost 863 of the 920 counties necessary to survey have been covered. The second, or more intensive, survey is in progress and about 200 counties have been covered. Resurvey for eliminating sprouts and seedlings after the first and second survey is somewhat continuous. Portions of some counties covered by the second survey have been checked for overlooked bushes and seedlings developing since the second survey. It is apparent that additional surveys of some areas will be necessary.

### Original Survey

The original survey, prior to 1926, for the most part was a rapid one for the purpose of destroying the greatest number of fruiting barberries in the shortest possible time. By the end of 1925, the original survey had been completed in all of the area except portions of Illinois, Michigan, Montana, and Ohio.

During 1926, the original survey was continued along the more intensive lines which are being used for second survey. Some areas, because of lack of settlement, or arid or forested conditions, may be excepted from survey, or only certain portions may be completely inspected. However, any original survey completed in these areas will be done intensively.

### Second Survey

In the second survey, an attempt is made to eliminate every barberry bush and seedling from both city and rural properties. The yard and garden, hedges and fence rows, pasture lands, woodlots, woods, thickets, groves, parks, cemeteries, and all places where barberries may grow, are covered by a complete, intensive strip-by-strip survey. Only such portions of a property are excepted from survey as are actually cultivated, but uncultivated areas within cultivated fields also are inspected.

This method is used in covering all urban and rural properties on or near which fruiting barberries have been found. The history of settlement, type of agriculture, comparative number of barberries first planted, their later spread, the stem-rust history, results of preliminary surveys, and various ecological factors help to determine the extent of this survey.

In recently settled areas, brush lands, timbered flood plains, the cut-over timberlands, mountainous and arid districts, remote woodlands such as National Forests, and the grazing lands may be left for later survey, or not covered at all, as developments show necessary.



### Resurvey

Resurvey is the revisiting of the properties from which barberries have been eradicated, in order to eliminate sprouts and to find and destroy seedlings. This activity includes the inspection not only of the property itself but of surrounding properties to which seeds may have been spread. If fruiting bushes have been found on the property or if the information about the planting is meager, the entire property and the surrounding properties are covered intensively for a sufficient distance to insure finding all scattered seedlings. The interval between successive resurveys is such that sprouts, overlooked small bushes, and seedlings will not have had time to produce seeds. This interval usually is three years or longer, depending upon conditions.

### Areas of Escaped Barberries

Every property surrounding a fruiting barberry bush is potentially a part of an area of escaped bushes. A complete survey is made of the properties on which fruiting bushes have been found, and of the surrounding properties, to determine whether or not there is a spread of barberries. If either scattered bushes or seedlings are found, the full extent of the spread is determined by further survey.

Full records with maps are made of each area of escaped barberry bushes. In making the survey and mapping each area, definite landmarks are indicated. These are designated on the map with symbols and the same symbols usually are inscribed on the landmarks such as trees, fence posts, and large rocks. This method locates the permanent boundaries of the area as surveyed. If succeeding inspections show further spread of seedlings the added portions are included with additional markings.

One of the principal difficulties in complete eradication of all barberries is the finding and destroying of the scattered seedlings. Fruiting barberry bushes produce thousands of seeds. These seeds are scattered by birds and other agencies to surrounding properties. Just how far they may be carried has not been ascertained. It is certain that they have been carried at least three miles, and possibly further. Some of the seeds grow immediately. Some lie dormant for one to several years before germinating. Some seeds are known to have remained dormant at least seven years.

Seedlings have been found scattered in orchards, groves, woodlots, woodlands, brushy pastures, thickets, swamp lands, river-bottom undergrowth, brushy fence rows and pastures, windbreaks, stone fences and stone piles, and rock ledges.



In the older-settled portions of the barberry eradication area, where cultivated barberries were introduced 50 to 100 years ago, many more barberry seeds have been scattered than in the newly-settled areas. In some of the communities in these older-settled States, escaped bushes and seedlings may be found on almost every farm. Areas of escaped bushes and seedlings increase in size as the scattered seedlings grow into bushes and produce seeds which are scattered in turn. In this way, seeds may be sown over a whole township or even a larger area in the course of years.

Areas of escaped barberries are brought under control as soon as practicable after they are located. All fruiting bushes and all bushes likely to fruit within three years usually are destroyed in the first treatment. If the area is small, all findable seedlings also are destroyed. If the area is large, destruction of small seedlings sometimes is delayed until the second treatment as a great many of the seedlings may succumb in the meantime to adverse weather conditions. In eradicating barberries from areas of escaped bushes, seasonal conditions that make for easier survey and eradication are used to advantage.

The interval elapsing between treatments is not long enough for any seedling to grow into a fruiting bush. This interval varies from three to five years, or possibly longer, depending upon local conditions.

#### ERADICATION

Salt is recommended for use in killing barberries. Kerosene is used if more convenient to procure, or if the salt may be disturbed or eaten by animals. However, the action of the kerosene is very slow. Barberry bushes close to valuable plants or trees are dug or pulled, as the application of chemicals may damage the other plants. Seedlings and small bushes sometimes are pulled, as it often is more economical to do so than to treat them with chemicals. That chemical eradication is effective is shown by the few sprouts that develop where chemicals have been applied properly.

During the calendar year 1926, 558.67 tons of salt and 1,962 gallons of kerosene were applied to 212,222 barberry bushes and sprouting bushes, and 1,663,829 seedlings, on 2,555 properties. (Tables 13 and 15.)

A total of 923,833 bushes, sprouting bushes, and seedlings was dug or pulled from 1,602 properties in the course of the three surveys. These figures show a rather large number dug or pulled, but about half of these were small bushes pulled from one area of escaped bushes. The total number eradicated by all methods during the year was 2,804,339 bushes, sprouting bushes, and seedlings.

## SUMMARIZED RESULTS

### Summary for 1926

During the calendar year, about 20 counties were covered in the original survey (Tables 1 and 2) and approximately 42 counties were surveyed for the second time. (Tables 5 and 6.) Resurvey was made where necessary to eliminate sprouts and seedlings. (Tables 9 and 10.) Original bushes numbering 204,530 were found on 2,555 properties and 723,530 bushes were destroyed on 3,057 properties. (Tables 1 and 2.) These totals include 52,286 bushes found on the 1,412 properties in second survey. (Tables 5 and 6.) In resurvey 16,149 sprouting bushes were found and 16,504 were eradicated. (Tables 9 and 10.) Seedlings numbering 2,062,689 were found in the course of three surveys.

### Summary for Nine Years

The first survey of cities, towns, and villages was nearly completed in the earlier years of this survey. The 13 States include 978 counties. In the nine years of the campaign from April 1, 1913, to December 31, 1926, an area equivalent to approximately 863 counties has been covered in the original or first survey. (Tables 3 and 4.) A few counties will not be surveyed because of late settlement, arid conditions, or location in National Forests. Of about 920 counties necessary to survey, there remain about 57 yet to cover in the first survey.

A second survey has been made in 209,28 counties. (Tables 7 and 8.) The resurvey has been continued on properties covered by original and second surveys, to the extent necessary to eliminate sprouts and seedlings. (Tables 11 and 12.) A resurvey has been combined with the second survey in a large number of counties.

Original bushes numbering 6,705,423 have been located on 75,005 properties. Of these, 6,636,594 bushes have been destroyed on 74,636 properties. In resurvey 306,804 sprouting bushes were found on 13,451 properties and 306,238 sprouting bushes were destroyed from 13,438 properties. In all surveys 7,371,627 seedlings were found and 7,368,266 were destroyed. These numbers include 117,877 bushes and 163,661 seedlings found, and 117,856 bushes and 163,661 seedlings destroyed, on second survey. This makes a grand total of 14,383,854 bushes, sprouting bushes and seedlings found, and 14,361,098 bushes, sprouting bushes and seedlings destroyed, in all surveys of the entire campaign. These data for the nine years are summarized in tables 3, 4, 7, 8, 11, 12, 14, 16, and 17.

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Credit is hereby gladly given to State Leaders, collaborators, and agents who have supplied data, and to Mrs. M. S. Koepfle, who has compiled, summarized, and tabulated them.

Table 1. Data showing, by States, the number of properties on which barberry bushes were found and destroyed in all surveys, and the number of properties upon which seedlings were found and destroyed in the original and second surveys during the calendar year January 1 to December 31, 1926

19



## ORIGINAL SURVEY, BUSHES AND SEEDLINGS, JANUARY 1 to DECEMBER 31, 1926

Table 2. Data showing, by States, the number of barberry bushes found and destroyed in all surveys, and the number of seedlings found and destroyed in original and second surveys during the calendar year January 1 to December 31, 1926

State	Number of bushes found--			Number of bushes destroyed:			Number of seedlings		
	In cities and towns:	In country:	Total	Dug	Treated	Total	Found	Dug	Destroyed
Colorado	84	251	287	371	9	363	606	0	606
Illinois	995	39,694	40,486	41,481	13,051	28,430	26,794	25,336	1,458
Indiana	351	262	440	791	1,231	403	1,461	1,291	120
Iowa	1,669	6,633	8,646	10,315	857	9,458	109,594	103	109,491
Michigan	159	73,565	85,345	85,504	275	96,096	1,323,226	32,235	1,290,991
Minnesota	216	2,746	3,294	3,510	242	3,268	3,021	136	2,885
Montana	72	97	293	365	75	291	223	188	33
Nebraska	34	1,557	2,161	2,195	494	1,765	1,066	1,026	41
North Dakota	69	0	330	399	215	184	27	0	27
Ohio	1,509	36,763	37,817	39,326	4,203	39,871	174,367	2,971	172,586
South Dakota	75	365	665	741	74	667	143	1	142
Wisconsin	245	18,998	19,287	19,532	497,288	24,775	17,209	5,843	12,366
Wyoming	0	0	0	0	0	0	0	0	0
Total	5,479	180,931	199,051	204,530	518,014	205,566	1,657,737	69,130	1,590,748



ORIGINAL SURVEY, PROPERTIES, April 1, 1918, to December 31, 1926

Table 3. Data showing, by States, the number of properties on which barberry bushes were found and destroyed in all surveys, and the number of properties upon which seedlings were found and destroyed in original and second surveys, April 1, 1918, to December 31, 1926

State	Number of properties on which										Total number of proper-: Number of properties on which									
	bushes were found--					ties cleared of bushes					seedlings were--									
	: covered by:		In country			: Total in:		: cities			: Dug		: Treated			: Found		: Destroyed		
	: original	: survey	: and towns:	: Having	: escaped:	: Total	: and	: cities	: country	: bushes	: Dug	: Treated	: Total	: Dug	: Treated	: Total	: Dug	: Treated	: Total	: Total
Colorado	31.49:	1,560:	188:	70:	138:	1,748:	1,653:	92:	1,745:	7:	0:	7:	0:	7:	7:	7:	0:	7:	7:	7
Illinois	74.00:	10,956:	3,291:	1,278:	3,291:	14,247:	12,559:	1,688:	14,247:	260:	202:	260:	202:	260:	202:	260:	202:	260:	202:	260
Indiana	92.00:	3,698:	1,322:	363:	1,322:	5,020:	4,499:	501:	5,000:	67:	32:	67:	32:	67:	32:	67:	32:	67:	32:	66
Iowa	99.00:	7,108:	2,857:	856:	2,857:	9,965:	9,095:	868:	9,963:	90:	37:	90:	37:	90:	37:	90:	37:	90:	37:	90
Michigan	63.40:	5,121:	5,718:	2,011:	5,718:	10,839:	9,017:	1,602:	10,619:	602:	426:	602:	426:	602:	426:	602:	426:	602:	426:	602
Minnesota	37.00:	3,178:	2,117:	551:	2,117:	5,295:	4,940:	355:	5,295:	399:	361:	399:	361:	399:	361:	399:	361:	399:	361:	399
Montana	43.16:	210:	117:	35:	117:	327:	271:	49:	320:	13:	9:	13:	9:	13:	9:	13:	9:	13:	9:	13
Nebraska	93.00:	3,213:	832:	151:	832:	4,045:	3,693:	352:	4,045:	35:	18:	35:	18:	35:	18:	35:	18:	35:	18:	35
North Dakota	53.00:	549:	347:	1:	347:	896:	771:	125:	896:	4:	1:	4:	1:	4:	1:	4:	1:	4:	1:	4
Ohio	78.65:	7,828:	3,212:	1,101:	3,212:	11,040:	9,769:	1,247:	11,016:	324:	55:	324:	55:	324:	55:	324:	55:	324:	55:	324
South Dakota	69.00:	504:	696:	149:	696:	1,200:	819:	381:	1,200:	95:	85:	95:	85:	95:	85:	95:	85:	95:	85:	95
Wisconsin	71.00:	7,044:	3,249:	1,480:	3,249:	10,293:	9,059:	1,193:	10,252:	224:	100:	224:	100:	224:	100:	224:	100:	224:	100:	216
Wyoming	8.12:	75:	15:	1:	15:	90:	86:	2:	88:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0
Total	862.82:	51,044:	23,961:	8,047:	23,961:	75,005:	66,231:	8,455:	74,686:	2,120:	1,326:	2,120:	1,326:	2,120:	1,326:	2,120:	1,326:	2,120:	1,326:	2,111

ORIGINAL SURVEY, BUSHES AND SEEDLINGS, April 1, 1918, to December 31, 1926

Table 4. Data showing, by States, the number of barberry bushes found and destroyed in all surveys, and the number of seedlings found and destroyed in original and second surveys, April 1, 1918, to December 31, 1926

State	Number of bushes found--			Number of bushes destroyed:			Number of seedlings--				
	In cities and towns:	In country	Total	Total	Dug	Treated:	Total	Found	Dug	Treated	Total
Colorado	19,681:	2,912:	5,124:	24,805:	23,917:	884:	24,801:	606:	0:	606:	606
Illinois	113,381:	213,162:	257,056:	370,437:	193,948:	176,489:	370,437:	1,565,569:	46,229:	1,519,340:	1,565,569
Indiana	77,821:	104,125:	119,365:	197,186:	99,045:	98,100:	197,145:	10,077:	2,268:	7,759:	10,027
Iowa	651,077:	65,976:	153,035:	204,162:	774,337:	29,319:	304,156:	116,311:	1,838:	114,473:	116,311
Michigan	54,143:	431,499:	513,061:	567,204:	367,123:	135,031:	555,154:	2,260,070:	393,793:	1,366,277:	2,260,070
Minnesota	592,708:	34,639:	196,758:	789,466:	780,820:	8,646:	789,466:	25,325:	19,842:	5,483:	25,325
Montana	6,985:	1,953:	4,673:	11,658:	10,097:	1,359:	11,456:	3,985:	2,210:	1,775:	3,985
Nebraska	73,119:	7,955:	24,592:	97,711:	91,165:	6,546:	97,711:	10,246:	3,876:	6,370:	10,246
North Dakota	14,548:	150:	8,265:	22,813:	19,350:	2,963:	22,813:	183:	150:	33:	183
Ohio	219,624:	92,738:	111,844:	331,468:	250,367:	50,436:	330,803:	342,618:	12,757:	329,861:	342,618
South Dakota	23,746:	21,243:	36,806:	60,532:	49,085:	11,447:	60,552:	17,636:	16,865:	821:	17,686
Wisconsin	281,243:	3,130:	3,142:	3,423:	785:	3,350:	3,418:	63,049:	29,556:	30,207:	59,753
Wyoming	3,947:	1:	229:	4,176:	3,972:	35:	4,007:	0:	0:	0:	0
Total	2,132,023:	4,156,722:	4,573,400:	6,705,423:	6,014,103:	672,491:	6,686,594:	4,415,725:	1,029,384:	3,383,005:	4,412,389

# SECOND SURVEY, PROPERTIES, JANUARY 1 to DECEMBER 31, 1926

Table 5. Data showing, by States, the number of properties on which barberry bushes and seedlings were found and destroyed on second survey in the barberry eradication campaign during the calendar year January 1 to December 31, 1926

State	Number of properties on which bushes were found--										Total number of properties on which seedlings were--									
	In country					Total in					Total					Destroyed				
	counties:	In cities:	towns:	escaped:	Total	cities:	and	country:	total:	Found	Dug	Treated	Found	Dug	Treated	Total	Dug	Treated	Total	Total
Colorado	1.05:	13:	247:	211:	7:	17:	30:	5:	25:	30:	7:	0:	7:	0:	7:	7	0:	7:	7	7
Illinois	4.21:	247:	69:	35:	0:	316:	563:	315:	248:	563:	60:	48:	12:	48:	12:	60	48:	12:	60	60
Indiana	2.20:	69:	35:	56:	0:	43:	112:	73:	36:	109:	14:	9:	5:	9:	5:	14	9:	5:	14	14
Iowa	7.63:	35:	0:	0:	0:	108:	141:	36:	105:	141:	14:	4:	10:	4:	10:	14	4:	10:	14	14
Michigan	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0	0:	0:	0	0
Minnesota	6.60:	9:	27:	4:	27:	64:	73:	16:	57:	73:	8:	4:	4:	4:	4:	8	4:	4:	8	8
Montana	1.43:	2:	19:	24:	4:	5:	7:	4:	2:	6:	1:	1:	0:	1:	0:	1	1:	0:	1	1
Nebraska	6.50:	19:	8:	0:	0:	83:	102:	29:	81:	110:	11:	9:	3:	9:	3:	12	9:	3:	12	12
North Dakota	3.60:	8:	0:	0:	0:	9:	17:	7:	10:	17:	2:	0:	2:	0:	2:	2	0:	2:	2	2
Ohio	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0	0:	0:	0	0
South Dakota	6.37:	14:	29:	205:	0:	74:	88:	12:	76:	88:	4:	1:	3:	4:	3:	4	1:	3:	4	4
Wisconsin	1.81:	42:	0:	0:	0:	237:	279:	73:	207:	280:	48:	13:	35:	13:	35:	48	13:	35:	48	48
Wyoming	.60:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0	0:	0:	0	0
Total	41.97:	456:	571:	956:	1,412:	570:	847:	1,417:	169:	81:	89:	170:	81:	89:	170:	170	81:	89:	170	170



## SECOND SURVEY, BUSHES AND SEEDLINGS, January 1 to December 31, 1926

Table 6. Data showing, by States, the number of barberry bushes and seedlings found and destroyed on second survey in the barberry eradication campaign during the calendar year January 1 to December 31, 1926

State	Number of bushes found--			Number of bushes destroyed			Number of seedlings--				
	In cities:	In country		Total	Dug	Treated	Total	Found	Dug	Treated	Total
	and towns:	Escaped:	Total								
Colorado	81:	32:	62:	143:	6:	137:	143:	606:	0:	606:	606
Illinois	761:	39,491:	39,994:	40,755:	12,667:	28,088:	40,755:	16,248:	14,790:	1,458:	16,248
Indiana	300:	31:	161:	461:	298:	153:	451:	1,318:	1,266:	52:	1,318
Iowa	381:	1,203:	2,598:	2,979:	569:	2,410:	2,979:	103,035:	32:	103,003:	103,035
Michigan	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0
Minnesota	104:	808:	1,294:	1,398:	111:	1,287:	1,398:	946:	114:	832:	946
Montana	2:	77:	81:	83:	73:	9:	82:	29:	29:	0:	29
Nebraska	34:	1,552:	2,114:	2,148:	471:	1,722:	2,193:	1,066:	1,026:	41:	1,067
North Dakota	45:	0:	275:	320:	215:	105:	320:	27:	0:	27:	27
Ohio	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0
South Dakota	76:	196:	496:	572:	71:	501:	572:	143:	1:	142:	143
Wisconsin	220:	2,924:	3,207:	3,427:	634:	2,794:	3,428:	10,491:	5,843:	4,648:	10,491
Wyoming	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:	0
Total	2,004:	46,314:	50,282:	52,226:	15,115:	37,206:	52,321:	133,909:	23,101:	110,809:	133,910

# SECOND SURVEY, PROPERTIES, January 1, 1922, to December 31, 1926

Table 7. Data showing, by States, the number of properties on which barberry bushes and seedlings were found and destroyed on second survey in barberry eradication campaign from January 1, 1922, to December 31, 1926

State	Number of properties on which bushes were found--				Total number of properties cleared of bushes				Number of properties on which seedlings were--			
	Number of:	cities:	towns:	and towns:	In country:	cities & country:	Dug:	Treated:	Total:	Found:	Dug:	Treated:
Colorado	21.09:	13:	23:	47:	60:	9:	51:	60:	7:	0:	7:	7
Illinois	4.55:	322:	242:	375:	697:	421:	276:	697:	85:	72:	13:	85
Indiana	9.35:	188:	13:	98:	286:	202:	76:	278:	18:	11:	7:	18
Iowa	21.53:	74:	178:	326:	400:	123:	276:	399:	40:	7:	33:	40
Michigan	3.00:	49:	38:	75:	124:	75:	46:	124:	4:	4:	0:	4
Minnesota	46.85:	74:	116:	383:	457:	182:	275:	457:	43:	15:	28:	43
Montana	10.13:	2:	4:	6:	8:	5:	2:	7:	1:	1:	0:	1
Nebraska	22.00:	67:	57:	263:	330:	82:	248:	330:	28:	17:	11:	23
North Dakota	29.65:	25:	0:	67:	92:	26:	66:	92:	3:	0:	3:	3
Ohio	2.00:	18:	0:	7:	25:	24:	1:	25:	0:	0:	0:	0
South Dakota	25.87:	43:	40:	167:	210:	33:	177:	210:	8:	5:	3:	8
Wisconsin	11.76:	201:	466:	615:	816:	340:	476:	816:	102:	52:	50:	102
Wyoming	1.10:	1:	0:	1:	2:	1:	1:	2:	0:	0:	0:	0
Total	209.28:	1,077:	1,207:	2,430:	3,507:	1,526:	1,971:	3,497:	339:	184:	155:	339

## SECOND SURVEY, BUSHES AND SEEDLINGS, January 1, 1922, to December 31, 1926

Table 8. Data showing, by States, the number of barberry bushes and seedlings found and destroyed on second survey in the barberry eradication campaign from January 1, 1922, to December 31, 1926

State	Number of bushes found--			Number of bushes destroyed			Number of seedlings--					
	In cities and towns:	Escaped:	Total	In country:	Total	Dug	Treated	Total	Found	Dug	Treated	Total
Colorado	81:	30:	114:	225:	87,005:	13:	212:	225:	606:	0:	606:	606
Illinois	1,216:	84,645:	85,789:	87,005:	18,534:	18,534:	68,471:	87,005:	18,800:	17,017:	1,783:	18,800
Indiana	672:	55:	303:	980:	677:	677:	285:	962:	1,327:	1,271:	56:	1,327
Iowa	532:	2,277:	4,632:	5,164:	1,073:	1,073:	4,089:	5,162:	105,522:	1,067:	104,455:	105,522
Michigan	96:	339:	438:	534:	262:	262:	272:	534:	240:	240:	0:	240
Minnesota	453:	2,006:	4,523:	5,281:	1,753:	1,753:	3,523:	5,281:	3,627:	536:	3,091:	3,627
Montana	2:	77:	82:	84:	74:	74:	9:	83:	29:	29:	0:	29
Nebraska	506:	2,609:	5,032:	5,538:	1,235:	1,235:	4,303:	5,538:	4,496:	3,476:	1,020:	4,496
North Dakota	145:	0:	1,703:	1,848:	315:	315:	1,533:	1,848:	30:	0:	30:	30
Ohio	59:	0:	31:	90:	88:	88:	2:	90:	0:	0:	0:	0
South Dakota	344:	334:	1,759:	2,103:	324:	324:	1,779:	2,103:	828:	686:	142:	328
Wisconsin	741:	7,535:	8,250:	8,991:	3,213:	3,213:	5,773:	8,991:	28,156:	19,059:	9,097:	28,156
Wyoming	1:	0:	33:	34:	1:	1:	33:	34:	0:	0:	0:	0
Total	4,853:	99,957:	113,024:	117,877:	27,572:	27,572:	90,284:	117,856:	163,661:	43,381:	120,280:	163,661



# RESURVEY, PROPERTIES, January 1 to December 31, 1926

Table 9. Data showing, by States, the number of properties on which sprouting bushes and seedlings were found and destroyed on resurvey in the barberry eradication campaign during the calendar year January 1 to December 31, 1926

State	Number of properties on which sprouting bushes were found--			Total number of properties : cleared of sprouting bushes:			Number of properties on which seedlings were--		
	: In country			: Total in:			: Destroyed		
	: In cities:	: Having :	: cities & :	: cities & :	: Dug :	: Treated :	: Found :	: Dug :	: Treated :
	: and towns:	: escaped:	: Total :	: country :					
	: bushes :								
Colorado	11:	9:	16:	27:	4:	24:	28:	10:	1:
Illinois	38:	86:	115:	153:	81:	72:	153:	91:	80:
Indiana	16:	21:	46:	62:	38:	23:	61:	9:	3:
Iowa	25:	43:	123:	148:	49:	99:	148:	63:	27:
Michigan	10:	2:	2:	12:	8:	4:	12:	2:	0:
Minnesota	29:	72:	137:	166:	55:	111:	166:	50:	30:
Montana	6:	3:	4:	10:	7:	3:	10:	9:	8:
Nebraska	14:	7:	43:	62:	25:	39:	64:	3:	2:
North Dakota	43:	0:	44:	92:	20:	72:	92:	5:	0:
Ohio	0:	0:	0:	0:	0:	0:	0:	0:	0:
South Dakota	1:	2:	7:	8:	1:	7:	8:	5:	4:
Wisconsin	19:	17:	34:	53:	22:	31:	53:	22:	11:
Wyoming	0:	0:	0:	0:	0:	0:	0:	0:	0:
Total	217:	262:	576:	793:	310:	485:	795:	269:	168:
								100:	268

## RESURVEY, SPROUTING BUSHES AND SEEDLINGS, January 1 to December 31, 1926

Table 10. Data showing, by States, the number of sprouting bushes and seedlings found and destroyed on resurvey in the barberry eradication campaign during the calendar year January 1 to December 31, 1926

State	: Number of sprouting bushes found-:			: Number of sprouting bushes destroyed:			: Number of seedlings--:		
	: In cities:	: In country:	: Total:	: Dug:	: Treated:	: Total:	: Found:	: Dug:	: Total:
	: and towns:	: Escaped:	: Total:	: Total:	: Dug:	: Treated:	: Found:	: Dug:	: Total:
Colorado	31:	13:	74:	105:	7:	99:	106:	216:	216
Illinois	157:	3,036:	6,134:	6,291:	3,466:	2,825:	6,291:	321,800:	372,077
Indiana	34:	163:	220:	254:	93:	160:	253:	306:	431:
Iowa	233:	400:	6,082:	6,315:	5,590:	1,077:	6,667:	1,240:	13,561:
Michigan	13:	25:	25:	38:	25:	13:	33:	5:	0:
Minnesota	111:	969:	1,372:	1,483:	331:	1,152:	1,483:	1,379:	686:
Montana	15:	2:	13:	33:	19:	14:	33:	37:	23:
Nebraska	162:	124:	579:	741:	160:	534:	744:	267:	100:
North Dakota	220:	0:	210:	430:	85:	345:	430:	99:	99:
Ohio	0:	0:	0:	0:	0:	0:	0:	0:	0:
South Dakota	1:	2:	35:	36:	1:	35:	36:	32:	8:
Wisconsin	80:	293:	343:	423:	71:	352:	423:	6,651:	7,765:
Wyoming	0:	0:	0:	0:	0:	0:	0:	0:	0:
Total	1,057:	5,057:	15,092:	16,149:	9,848:	6,556:	16,504:	404,952:	73,081:
								331,346:	404,927

# RESURVEY, PROPERTIES, April 1, 1918, to December 31, 1926

Table 11. Data showing, by States, the number of properties on which sprouting bushes and seedlings were found and destroyed on resurvey in the barberry eradication campaign from April 1, 1918, to December 31, 1926

State	Number of properties on which sprout--				Total number of properties:				Number of properties on which			
	ing bushes were found--				:cleared of sprouting bushes:				seedlings were--			
	In country	Total in	cities	Dug	Treated	Total	Found	Destroyed	Dug	Treated	Total	
	In cities:	Having:	and	towns:	escaped:	bushes:						
	1,442:	114:	193:	1,635:	1,416:	219:	1,635:	102:	19:	87:	102	
Colorado	442:	395:	767:	1,209:	572:	637:	1,209:	387:	316:	71:	387	
Illinois	178:	136:	266:	444:	305:	134:	439:	43:	14:	33:	47	
Indiana	343:	329:	1,011:	1,354:	708:	646:	1,354:	275:	142:	133:	275	
Iowa	146:	114:	289:	435:	375:	60:	435:	191:	187:	4:	191	
Michigan	736:	612:	1,295:	2,031:	1,630:	401:	2,031:	2,241:	2,114:	127:	2,241	
Minnesota	123:	6:	56:	179:	163:	16:	179:	23:	20:	3:	23	
Montana	211:	26:	413:	624:	363:	261:	624:	33:	14:	19:	33	
Nebraska	295:	0:	223:	518:	243:	275:	518:	6:	0:	6:	6	
North Dakota	1,421:	281:	1,021:	2,442:	2,104:	338:	2,442:	716:	551:	165:	716	
Ohio	341:	35:	338:	679:	513:	166:	679:	79:	36:	43:	79	
South Dakota	913:	655:	946:	1,859:	1,344:	511:	1,855:	274:	168:	106:	274	
Wisconsin	32:	0:	10:	42:	31:	7:	38:	7:	7:	0:	7	
Wyoming												
Total	6,623:	2,703:	6,828:	13,451:	9,767:	3,671:	13,438:	4,382:	3,588:	793:	4,381	



# RESURVEY, SPROUTING BUSHES AND SEEDLINGS, April 1, 1918, to December 31, 1926

Table 12. Data showing, by States, the number of sprouting bushes and seedlings found and destroyed on resurvey in the barberry eradication campaign from April 1, 1918, to December 31, 1926

State	Number of sprouting bushes found--				Number of seedlings--			
	In cities and towns		Escaped		In country		Destroyed	
	Total	Escaped	Total	Dug	Treated	Found	Dug	Total
Colorado	3,827	2,023	3,160	6,987	1,839	3,672	712	2,960
Illinois	4,816	7,902	16,626	21,442	11,519	574,840	399,073	175,767
Indiana	1,529	16,871	18,310	19,839	1,941	4,296	719	3,582
Iowa	4,009	8,205	23,942	27,951	12,171	57,648	28,774	28,874
Michigan	524	1,194	2,418	2,942	711	607,434	547,349	607,434
Minnesota	14,039	17,413	36,832	50,871	10,181	28,097	4,402	23,695
Montana	3,557	5	1,647	5,204	134	1,069	399	670
Nebraska	6,172	249	10,415	16,587	4,023	3,060	1,243	1,817
North Dakota	354	0	1,260	2,114	1,833	100	0	100
Ohio	5,666	8,046	12,276	17,942	4,871	362,535	111,527	251,008
South Dakota	20,980	5,284	22,045	43,025	6,407	9,105	6,494	2,611
Wisconsin	11,244	75,129	80,081	91,325	71,704	1,303,943	136,941	1,167,002
Wyoming	546	0	29	575	21	53	53	0
Total	77,763	142,321	229,041	306,804	127,355	306,238	2,955,902	1,237,656
								1,718,221
								2,955,877

# CHEMICAL TREATMENT, 1926

Table 13. Data showing, by States, the number of properties on which barberry bushes and sprouting barberry bushes were treated with chemicals, and the number of bushes, sprouting bushes, and seedlings treated from January 1 to December 31, 1926

State	Number treated--									
	With Salt		With sodium arsenite:		With Kerosene		Total			
	Proper-:ties	Bushes	Seedlings	Proper-:ties	Bushes	Seed-:lings	Proper-:ties	Bushes	Seed-:lings	Proper-:ties
Colorado	48:	428:	818:	0:	0:	5:	34:	0:	53:	462:
Illinois	359:	31,255:	51,735:	0:	0:	0:	0:	0:	359:	31,255:
Indiana	66:	462:	427:	0:	0:	17:	106:	43:	83:	565:
Iowa	247:	9,521:	123,052:	0:	0:	8:	1,014:	0:	255:	10,535:
Michigan	750:	96,109:	1,290,991:	0:	0:	0:	0:	0:	750:	96,109:
Minnesota	194:	4,401:	3,571:	0:	0:	2:	19:	0:	196:	4,420:
Montana	17:	295:	53:	0:	0:	0:	0:	0:	17:	295:
Nebraska	46:	1,281:	40:	0:	0:	85:	1,168:	101:	131:	2,349:
North Dakota	96:	529:	126:	0:	0:	0:	0:	0:	96:	529:
Ohio	265:	39,799:	168,162:	0:	0:	13:	72:	4,424:	278:	39,871:
South Dakota	83:	702:	150:	0:	0:	0:	0:	0:	83:	702:
Wisconsin	254:	25,127:	20,131:	0:	0:	0:	0:	0:	254:	25,127:
Wyoming	0:	0:	0:	0:	0:	0:	0:	0:	0:	0:
Total	2,425:	209,909:	1,659,261:	0:	0:	130:	2,313:	4,563:	2,555:	212,222:

CHEMICAL TREATMENT, Sept. 1, 1921, to December 31, 1926

Table 14. Data showing, by States, the number of properties on which barberry bushes and sprouting barberry bushes were treated with chemicals, and the number of bushes, sprouting bushes, and seedlings treated from Sept. 1, 1921, to December 31, 1926

State	Number treated--											
	With salt			With sodium arsenite			With kerosene			Total		
	Proper- ties	Bushes	Seedlings	Proper- ties	Bushes	Seed- lings	Proper- ties	Bushes	Seed- lings	Proper- ties	Bushes	Seedlings
Colorado	303	2,640	3,566	0	0	0	3	83	0	311	2,723	3,566
Illinois	2,286	186,000	1,695,137	34	839	0	5	1,169	0	2,325	188,008	1,695,137
Indiana	613	99,935	11,268	0	0	0	17	106	43	635	100,041	11,311
Iowa	1,487	40,696	143,344	0	0	0	27	1,294	3	1,814	41,990	143,347
Michigan	1,286	117,961	1,298,813	239	8,594	29,911	137	62,187	97,638	1,662	1,742	1,426,362
Minnesota	727	18,698	29,046	25	85	102	4	44	30	755	18,827	29,178
Montana	65	1,493	2,445	0	0	0	0	0	0	65	1,493	2,445
Nebraska	435	8,219	7,483	0	0	0	178	2,350	704	613	10,659	8,187
North Dakota	379	4,729	133	21	67	0	0	0	0	400	4,796	133
Ohio	1,303	73,150	435,035	10	1,069	59,300	272	11,058	86,534	1,535	85,507	580,919
South Dakota	539	17,861	3,416	0	0	0	8	13	16	547	17,874	3,432
Wisconsin	1,353	133,595	1,195,507	350	5,824	1,702	1	1	0	1,704	159,420	1,197,209
Wyoming	9	56	0	0	0	0	0	0	0	9	56	0
Total	10,790	705,033	4,825,243	679	16,478	91,015	657	78,335	184,963	12,126	799,846	5,101,226



CHEMICALS, QUANTITIES USED, January 1, to December 31, 1926

Table 15. Data showing, by States, quantities of chemicals used in the barberry eradication campaign from January 1 to December 31, 1926

State	Salt (Tons)		Sodium arsenite (Gals.)		Kerosene (Gallons)	
	Furnished by--		Furnished by--		Furnished by--	
	Property:	State:	Conference:	Conference:	Conference:	Conference:
	owner	agency:	P.G. Rust	U.S.D.A.	P.G. Rust	U.S.D.A.
				Total:	Owner:	Total
Colorado	0:	0:	0:	1.19:	0:	49.0:
Illinois	0:	.91:	0:	46.30:	0:	0:
Indiana	.01:	0:	0:	2.41:	0:	132.0:
Iowa	.04:	0:	.54:	34.74:	0:	3.5:
Michigan	0:	0:	0:	171.19:	0:	314.5:
Minnesota	.75:	0:	0:	11.92:	0:	0:
Montana	0:	0:	0:	.82:	0:	17.0:
Nebraska	0:	0:	0:	2.94:	0:	0:
North Dakota	2.50:	0:	0:	.20:	0:	1.5:
Ohio	.12:	207.07:	0:	14.32:	0:	1,156.5:
South Dakota	.26:	0:	0:	4.99:	0:	0:
Wisconsin	0:	54.37:	0:	.09:	0:	259.0:
Wyoming	0:	0:	0:	0:	0:	0:
Total	3.68:	262.35:	.54:	292.10:	0:	1,928.0:
				558.67:		1,962.0

CHEMICALS, QUANTITIES USED, Sept. 1, 1921, to December 31, 1926

Table 16. Data showing, by States, quantities of chemicals used in the barberry eradication campaign from Sept. 1, 1921, to December 31, 1926

State	Salt (Tons)		Sodium Arsenite (Gallons)		Kerosene (Gallons)	
	Property:	State:	Conference:	Total	Conference:	Total
	Owner	Agency:	P.G. Rust:	U.S.D.A.:	P.G. Rust:	U.S.D.A.:
	Furnished by--		Furnished by--		Furnished by--	
	Owner	Agency:	P.G. Rust:	U.S.D.A.:	Owner	U.S.D.A.:
Colorado		0:	0:	5.16:	5.16:	0:
Illinois		.75:	55.78:	31.00:	314.07:	401.60:
Indiana		.83:	0:	58.45:	59.28:	0:
Iowa		44.09:	0:	20.69:	92.58:	157.36:
Michigan		.03:	0:	8.49:	257.33:	265.85:
Minnesota		2.88:	.84:	9.21:	47.89:	53.82:
Montana		.12:	0:	8.05:	5.17:	0:
Nebraska		.13:	0:	8.55:	19.23:	27.91:
North Dakota		14.63:	5.00:	0:	4.88:	24.51:
Ohio		3.02:	342.48:	0:	23.37:	368.87:
South Dakota		14.37:	0:	17.85:	9.79:	42.01:
Wisconsin		.25:	174.22:	70.00:	25.29:	270.36:
Wyoming		.05:	0:	0:	.21:	0:
Total		81.15:	578.92:	165.79:	856.25:	1,682.11:
					599.8:	456.65:
					1,056.45:	5,737.75:
					16,276.575:	22,014.125:

a 10 gallons of drip oil

b carbon bisulphide

\* 4,903 gallons furnished by State

GRAND SUMMARY. ORIGINAL BUSHES, SPROUTING BUSHES, AND SEEDLINGS, 1918 to 1926

Table 17. Data showing, by States, the number of bushes, sprouting bushes, and seedlings found and destroyed in all surveys in the barberry eradication campaign, April 1, 1918, to December 31, 1926

State	Original bushes		Sprouting bushes		Seedlings		Grand Total	
	Found	Destroyed	Found	Destroyed	Found	Destroyed	Found	Destroyed
Colorado	24,805	24,801	6,937	6,937	4,278	4,278	36,070	36,066
Illinois	370,437	370,437	21,442	21,442	2,140,409	2,140,409	2,532,288	2,532,288
Indiana	197,186	197,145	19,839	19,533	14,373	14,298	231,398	230,976
Iowa	304,152	304,156	27,951	27,951	173,959	173,959	1,006,072	1,006,065
Michigan	567,204	555,154	2,942	2,942	2,867,504	2,867,504	3,437,650	3,425,600
Minnesota	789,466	789,466	50,871	50,871	53,422	53,422	893,759	893,759
Montana	11,638	11,456	5,204	5,204	5,054	5,054	21,916	21,714
Nebraska	97,711	97,711	16,587	16,587	13,306	13,306	127,604	127,604
North Dakota	22,813	22,813	2,114	2,114	283	283	25,210	25,210
Ohio	331,468	330,803	17,942	17,942	705,203	705,203	1,054,613	1,053,948
South Dakota	60,552	60,552	43,025	43,025	26,791	26,791	130,368	130,368
Wisconsin	3,423,785	3,418,093	91,325	91,144	1,366,992	1,363,706	4,882,102	4,872,943
Wyoming	4,176	4,007	575	496	53	53	4,804	4,556
Total	6,705,423	6,686,594	306,804	306,238	7,371,627	7,368,266	14,383,354	14,361,093





## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 5

March 15, 1927

Personnel (Mar. 1-15) and Field Station (Feb. 1-28) Issue

### PERSONNEL ITEMS

C. E. Chambliss, associate agronomist in charge of rice investigations, returned to Washington on March 9 from an extended trip in the rice-growing sections of the South.

J. B. Sieglinger, associate agronomist in charge of the grain sorghum and broomcorn investigations at the Woodward Field Station, Woodward, Okla., who has been in the Office since January 19, returned to his headquarters on March 5.

Dr. R. W. Webb, associate pathologist in the investigation of cereal virus diseases, was transferred to the Cotton Division of the Bureau of Agricultural Economics effective March 11. Dr. Webb will have charge of studies concerning the physical properties of cotton fibers in reference to the cotton standards.

### VISITORS

Mr. H. C. Kao, who has been in the United States for some time, was an Office caller to obtain small samples of grain varieties, including grain sorghums and flax, likely to be of value for experiment at the Agricultural College, Tai Yuan Fu, Shansi, China. Mr. Kao will return to China in the near future.

Señor Don Manuel Mesa A., Agricultural Attaché to the Mexican Embassy in Washington, was an Office visitor on March 10.

# MANUSCRIPTS AND PUBLICATIONS

13 A manuscript entitled "Stinking Smut of Wheat Cuts Profits," was submitted February 24 for publication in the Miscellaneous Circular series.

15 A manuscript entitled "Harvesting Wheat with a Combined Harvester-Thresher in the Great Plains Area, 1926," by R. S. Kifer, W. R. Humphries, and J. H. Martin, was submitted March 12 for mimeographed reproduction. (The investigation on which this manuscript is based was conducted by representatives of the Bureaus of Agricultural Economics, Public Roads, and Plant Industry, respectively.)

Galley proof of revision of Farmers' Bulletin 786, "Fall-Sown Grains in Maryland and Virginia," by T. R. Stanton, was read March 4.

The abstract entitled "A Study of the Inheritance of Winterhardiness, Growth Habit, and Quality of Seed in Crosses between Spring and Winter Wheats," by H. K. Hayes and O. S. Aamodt, appears in the Anatomical Record 34 (3): 175-176. December, 1926. (Cooperation between the Office of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

The following abstracts by members of the staff of this Office appear in the January (1927) issue of Phytopathology.

Griffiths, Marion A. Smut Resistance in Corn. Phytopath. 17 (1): 42. January, 1927.

Mains, E. B. The Effect of Leaf Rust, Ruccinia trititina, on the Seed Production of Wheat. Phytopath. 17 (1): 40. January, 1927.

Melchers, L. E. and C. O. Johnston. Sulphur and Copper Carbonate Dusts as Efficient Fungicides for the Control of Sorghum Kernel Smut and Millet Smut. Phytopath. 17 (1): 52. January, 1927.

Tisdale, W. H. and Marion A. Griffiths. Strains of Ustilago nuda and Certain Host Relationships. Phytopath. 17 (1): 42. January, 1927.

Webb, Robert W. Certain Factors Influencing the Development of the Mosaic Disease in Winter Wheat. Phytopath. 17 (1): 41. January, 1927.

The article entitled "Effects of Soil Moisture and Temperature and of Dehulling on the Infection of Oats by Loose and Covered Smuts," by C. O. Johnston, appears in Phytopathology 17 (1): 31-36. January, 1927. (Cooperation between the Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

The article entitled "Nature of Resistance of Berberis spp. to Puccinia graminis," by Leonard W. Melander and J. H. Craigie, appears in Phytopathology 17 (2): 95-114, figs. 1-4. February, 1927. (Cooperation between the Office of Cereal Crops and Diseases and the Section of Plant Pathology, Department of Agriculture, University of Minnesota.)

Colo. Agr. Expt. Sta. Bul. 315, entitled "Barberry Eradication and Sources of Black Stem Rust in Colorado," by L. W. Durrell and E. A. Lungren, was received March 1, bearing date of January, 1927. (Cooperation between the Office of Cereal Crops and Diseases and the Colorado Agricultural College.)

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FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)  
(March 3)

We have now sold out and shipped all our Iogold oats. One-third of our corn testing is finished. I hope that we shall be ready for spring when the time comes.

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)  
(February 28)

With the assistance of Robert W. Bills, agent, an intensive publicity and educational program is being carried on this winter in the schools of Illinois.

During the period from January 26 to February 28, 30 high schools and two colleges were visited. Talks on barberry eradication were made before more than 3,000 students and faculty members in high school assemblies, and in science, botany, and agricultural classes. Much interest was displayed, and a number of questions usually were asked after each talk. In some localities the school authorities invited farmers to attend these lectures. New publicity material, including mounted specimens and lantern slides made from pictures taken in Illinois, was used. Several small bushes and seedlings were exhibited.

An itinerary has been worked out which allows the agent to visit two schools a day. It is expected that more than 90 schools will have been visited by May 10.

### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Starkman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)



Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

#### COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

#### NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, G. F. Sprague)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)  
(February 16)

Educational activities constituted the major project of the barberry eradication campaign in South Dakota in February. Lesson plans and materials for the study of stem rust and the common barberry were sent to every high school in the State and to the rural and public grade schools in 23 counties. Similar materials also were sent to the colleges and normal schools of the State. Personal visits will be made in March to each of these colleges and normal schools to make contacts with their agriculture and biology departments.

Supplementing the material sent to schools and colleges, an illustrated article on stem rust and its relation to the common barberry will appear in the March issue of the South Dakota Journal of Education. This Journal is sent to every grade-school and high-school instructor and to many of the college educators. Space in this Journal was received through the courtesy of Mr. C. G. St. John, State Superintendent of Public Instruction. The manuscript was prepared by The Conference for the Prevention of Grain Rust, of Minneapolis, in cooperation with the Office of Cereal Crops and Diseases and the State Leader's office at Brookings.

## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue) (February 21 and 28)

There is an attractive barberry exhibit on the Better Seed Special Train which started from Gardner, N. Dak., on February 10 to travel over the Great Northern, the Soo Line, and the Northern Pacific Railways until the last stop at Jamestown on March 5. At the end of its schedule the train will have stopped at 66 towns and cities in the State. At each stop, the people are invited to go through the coaches in which are exhibits of pure seeds, plant diseases (including black stem rust), cleaning machinery, etc., under the supervision of officials of the North Dakota State College. In addition to the exhibits, a program usually lasting about two hours is put on at each stop, and 10 to 20 minutes are devoted to a talk by E. M. Yocum, agent, on barberry eradication.

In January, demonstrations and talks on barberry eradication were given at each of a series of meetings of the North Dakota Retail Merchants' Association. These meetings were very well attended not only by merchants, but by bankers, teachers, farmers, and others, all of whom seemed greatly interested in the eradication of the barberry. Not a single person voiced any opposition to the campaign.

Two circulars, one entitled "Merchants of North Dakota," the other entitled "A Message to North Dakota Boys and Girls," have been published by the North Dakota Retail Merchants' Association. The former has been distributed to all the merchants of North Dakota and the latter to the boys and girls of the State. Both publications should make for better cooperation and assistance in the barberry eradication campaign.

In February, demonstrations and talks were given in the Smith-Hughes schools. The general public was invited to each program and there was a very satisfactory attendance. Besides the programs in the Smith-Hughes schools, talks were made at meetings of different local organizations, such as civic clubs, the Kiwanis Club, etc.

On March 10, Dr. E. C. Stakman, of the University of Minnesota, will give the principal address at the annual State convention of the North Dakota Retail Merchants' Association, which convenes at Grand Forks on March 8.

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (February 16)

The weather of the first week in February was unusually warm, with maximum temperatures of 42 degrees on the 3d and 4th. The snow melted considerably and later froze, leaving the surface of the ground icy in places. This midwinter thaw was followed by colder weather with minimum temperatures of 14 degrees below zero on the 3th and 9th. The only snowfall this month was one of about two inches on the 12th. The mean temperature for the first half of the month was 13.8 degrees, which is slightly above normal for February. With the exception of one day of wind there has been calm weather most of the time, with an average wind velocity of 4.3 miles per hour.

A recent examination of grain order cards on file shows that cereal varieties have been sent from this Substation during the past 14 years for testing in at least 38 States, besides several Provinces of Canada, four countries of South America, Alaska, Australia, and countries in Europe, Asia, and Africa.

(February 28)

The last day of February finds the ground nearly bare, only the remnants of the deeper drifts remaining. The precipitation for November, December, and January was considerably above normal, but that for February was below normal, being only 0.16 inch. Considerable melting occurred in the first week of February and again during the period from February 20 to 28. In the latter period most of the remaining snow disappeared, and the surface of the ground thawed enough to permit considerable water to soak into it. The maximum temperature for the month was 46 degrees on the 20th and the minimum was -14 degrees on the 3th and 17th.

The winter wheat nursery has been almost bare since the middle of February, but most of the plants appear to be alive. The plats of winter grain sown in standing corn stalks have been covered with snow since the last week of November.

Jackrabbits have been increasing in number in recent years, and during the present winter quite an industry has developed in this community, - that of hunting the rabbits and selling the skins. About 70,000 skins have been marketed in Dickinson this winter. The rabbits are becoming noticeably scarce and there probably will be less damage to crops in the coming growing season. Rabbits have caused some injury to fall-sown grain at the Substation; in dry summers barley has been injured at the time of first heading.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus)



## MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)  
(March 1)

The total precipitation for February was 0.37 inch, as compared with a normal of 0.61 inch. The minimum temperatures recorded were -22 and -12 degrees on the 16th and 17th. The maximum was 52 degrees on the 4th and 20th.

There has been hardly any soil blowing in the Judith Basin this winter. Winter wheat has been killed back to the surface of the ground, but the crowns and roots do not seem to be injured.

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

## WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell) (March 5)

This winter has been a wet one, although the rainfall has not been very much above normal. The present storm may be said to have begun on December 17, for the rains have been more or less continuous since that date. There have been only two or three periods of from 6 to 8 days without precipitation. Notwithstanding the almost constant rainfall, the precipitation in January was somewhat below normal. In February it was considerably above normal. The seasonal precipitation to date is 14.39 inches.



The entire State has been favored with abundant rains. The Sacramento Valley has received a generous supply and in the high Sierras there has been a heavy snowfall. The Sacramento River has been in flood stage for several weeks, and at the crest the waters were said to have been the highest for a period of 20 years. The waters above the city of Sacramento were turned into the Yolo By-Pass, so that very little damage resulted. On the other hand, the delta region south of Sacramento and in the vicinity of Stockton was flooded, causing considerable injury to the truck-crop industry.

As a result of so much winter rain, very little of the usual acreage of wheat and barley has been sown. In talking with some farmers a short time ago it was learned that they still plan to sow barley as soon as the weather permits. However, the weather is still more or less unsettled.

The November-sown cereals are making vigorous growth and are now from 12 to 15 inches in height. The plat experiment was sown in late December. Excellent stands were obtained. The infestation of weeds in the nurseries is more severe than it has been for years. It will be necessary to hand-weed several of the experiments in order to save them.

Dr. Roy G. Wiggans, Geneticist at Cornell University, is stopping at Davis for a few days en route to Nanking University, China, where he is to supervise the crop improvement program conducted in cooperation with Cornell University and The International Education Board.

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

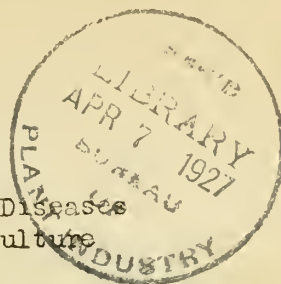
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7

CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 19

No. 6

March 31, 1927  
Personnel (Mar. 16-31) and Project Issue

NOTICE

Beginning with the issue of April 10, 1927, the Cereal Courier will appear three times a month, namely, on the 10th, 20th, and last days of the month. The courtesy will be greatly appreciated if all contributors at agronomic, pathologic, and barberry-eradication headquarters will mail field reports promptly on the 15th and last days of the month. The issues of the 10th and 20th days of the month carry the field reports.

PERSONNEL ITEMS

A. C. Dillman, associate agronomist in charge of flax investigations, was authorized to meet with the agronomists from the flaxseed producing States and the Chairman of the Flax Development Committee representing linseed crushers and linseed oil consumers, at St. Paul, Minn., March 18, and to present a paper on the growth of the flax seed. Mr. Dillman returned to Washington on March 22.

On April 1 Mr. Dillman will leave for a three-weeks trip in Louisiana, Texas, and Georgia to confer with officials regarding experiments with seed flax and to study and take notes on the flax classification nurseries and experiment plats at Crowley, La., and San Antonio, Tex.

Lysle D. Leach, agent in the cooperative crown rust investigations, at Ames, Iowa, will go to Experiment, Ga., about April 1 to inoculate, take notes on, and harvest the winter oat nursery. He also will collect data on overwintering of crown rust and the distribution of crown rust, etc., in the lower Mississippi Valley, and take notes on the varietal susceptibility of oats to crown rust at the several experiment stations in that region. Mr. Leach will finish the work about May 15.



John G. Willier, assistant agronomist in corn investigations, who has been connected with corn-breeding and genetic experiments since March 22, 1911, and whose headquarters have been at Manhattan, Kans., for the past year and a half, resigned his position on March 1.

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#### VISITORS

Prof. Dr. Karl Ludwigs, Direktor der Hauptstelle für Pflanzenschutz der Landwirtschaftskammer für die Provinz Brandenburg und für Berlin, located at Berlin-Dahlem, Germany, was in the Office on March 24 discussing the identity of willows used in basket making.

Dr. Jaroslav Peklo, professor of the Czechoslovak University of Technical Sciences at Prague, on March 26 presented a letter of introduction addressed to Dr. C. R. Ball by Dr. Rudolph Kuráz. Dr. Peklo will spend a few months in the United States to study special agricultural problems.

Dr. W. H. Tisdale, formerly pathologist in charge of smut investigations, now connected with E. I. duPont de Nemours & Co., of Wilmington, Del., visited the Office on March 26 on his return from Bloomington, Ill., where he had been in conference with Dr. J. R. Holbert and others regarding seed treatment problems.

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# MANUSCRIPTS AND PUBLICATIONS

14 A manuscript entitled "The Convergent Improvement of Selfed Lines of Corn," by Frederick D. Richey, has been approved and accepted for publication in The American Naturalist.

16 A manuscript entitled "Further Studies on Flag Smut of Wheat," by W. H. Tisdale, C. E. Leighty, and Benjamin Koehler, has been submitted for publication as a Department Bulletin.

17 A manuscript entitled "The Zonate Eye-Spot of Grasses Caused by Helminthosporium giganteum," by Charles Drechsler, was submitted March 9 for publication in the Journal of Agricultural Research.

18 A manuscript entitled "Natural and Artificial Hybrids of Yeoman Wheat and Rye," by C. E. Leighty and W. J. Sando, was approved March 29 for publication in the Journal of Heredity.

Galley proof of article entitled "The Nitrogen Compounds of the Rice Kernel as Compared with Those of Other Cereals," by S. L. Jodidi, for publication in the Journal of Agricultural Research, was read March 12.

Galley proof of Department Bulletin 1489, "Corn Breeding," by Frederick D. Richey, was read March 24.

Page proof of Farmers' Bulletin 786, revised, entitled "Fall-Sown Grains in Maryland and Virginia," by T. R. Stanton, was read March 24.

The paper entitled "Breeding Wheat for Resistance to Physiologic Forms of Stem Rust," by O. S. Aamodt, appears in the Journal of the American Society of Agronomy 19 (3): 206-218. March, 1927. (This paper was read as a part of the symposium on "Plant Breeding" at the meeting of the Society held in Washington, Nov. 19, 1926. The data presented were obtained in cooperative investigations between the Office of Cereal Crops and Diseases and the Department of Agriculture of the University of Minnesota.)

The article entitled "Effect of Smut (Ustilago zeae) on the Sugar Content of Cornstalks," by Annie May Hurd-Karrer and Heinrich Hesselbring, appears in the Journal of Agricultural Research 34 (2): 191-195. Jan. 15, 1927. (Received March 25) (Cooperation between Office of Cereal Crops and Diseases and Office of Plant Geography and Physiology, Bureau of Plant Industry.)

The paper entitled "Breeding Plants for Disease Resistance," by C. E. Leighty appears in the Journal of the American Society of Agronomy 19 (3): 219-225. March, 1927. (This paper is a discussion of the paper by O. S. Aamodt on "Breeding Wheat for Resistance to Physiologic Forms of Stem Rust," presented at the meeting of the Society held in Washington, D. C., November 19, 1926.)

The article entitled "Heritable Characters of Maize. XXVII--Colored Scutellum," by G. F. Sprague, appears in the Journal of Heredity 18 (1): 41-44, fig. 16. January, 1927. (Received March 19)

### CORN GREENHOUSE AND LABORATORY

The Office of Cereal Crops and Diseases is just completing a most up-to-date greenhouse on the Arlington Experiment Farm for the use of its corn investigations. It is located in the rose garden. The head house is about 75 feet long by 24 feet wide and contains two office rooms, two laboratories, and two large rooms for storing corn on the first floor. It is entered through a large center hallway with doors that can be opened to admit trucks or teams in case of emergency. The building is of cement with sheetrock partitions and is roofed with fireproof composition shingles. In the attic is ample storage room for drying corn and equipment. With the exception of electric lights and some minor parts the building is complete.

The greenhouse is arranged in four units, each 25 x 35 feet, so arranged that each unit can be operated at a different temperature according to the needs of the experiment.

The plans for this building were prepared by the Bureau of Public Roads by its Division of Agricultural Engineering. The whole building was built by the farm mechanics supervised by the superintendent, Mr. E. C. Butterfield. The greenhouse was so perfectly built that but one glass had to be trimmed in glazing.

Only two of the units of the greenhouse were completed in time to use during the present winter. Corn was planted in the first unit on December 2 and in the second unit on December 24, 1926. The plantings in the first unit were made to provide seed of several crosses needed in connection with the corn breeding investigations. The corn in the second unit consists largely of crosses between early North American varieties and the introductions from high altitudes in South America. Some of the South American parents also are being propagated, and miscellaneous genetic material is being carried forward another generation.

The soil in the first unit was taken from the rose garden, and its use demonstrated the fallacy of a rose-corn rotation. Thrips introduced with the soil seriously injured the corn plants before control was achieved. Most of the plants of the later maturing sorts were able to recover, but those of the earlier varieties were stunted beyond use.

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March 23, 1927

P.B.A. Circular No. 66

Amendments to U. S. Employees' Compensation Act

The attention of the chiefs of the various bureaus and independent offices of the Department is invited to the following communication of March 11, 1927, from the United States Compensation Commission:

The Commission desires to call attention to the Amendment to the Federal Compensation Act, which Amendment was approved February 12, 1927, Public No. 603. A copy of the same is enclosed herewith.

It will be noted that the following changes are made. Compensation on account of total disability is two-thirds of employee's monthly pay, not to exceed a maximum of \$116.67, instead of \$66.67 as formerly, and not less than a minimum of \$58.33, instead of \$33.33 as formerly, except that compensation can not exceed the monthly pay.

In computing compensation on account of death the pay must be considered to be not more than \$175 per month, instead of \$100 as formerly, nor less than \$87.50, instead of \$50 as formerly, but the total monthly compensation must not exceed the pay of deceased at the time of injury. The percentage rates of compensation to dependents in death cases remain the same, but such percentages now apply to the increased bases.

Burial expenses, in case where death results from the injury within six years, are now payable, in a sum not to exceed \$200, in the discretion of the Commission, instead of the sum of \$100 as formerly.

The only other change contained in the Amendment is the definition of the term "widow," the new language in this definition now including, "or living apart for reasonable cause or by reason of his desertion."

All of the above changes are effective on and after February 12, 1927, the date of approval.

It is requested that the personnel of the various bureaus and independent offices of the Department, both in Washington and in the field, be informed as to the foregoing changes in the law.

W. W. STOCKBERGER

Director.

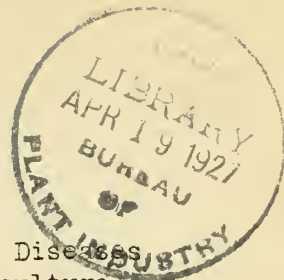




17

C E R E A L C O U R I E R

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 19

No. 7

April 10, 1927

Personnel (April 1-10) and Field Station (Mar. 1-31) Issue

PERSONNEL ITEMS

Dr. F. D. Kern, head of the department of botany, of the Pennsylvania State College, has been authorized to go to La Fayette, Ind., to assist in the completion of a manuscript on cereal rusts, in collaboration with Dr. J. C. Arthur.

M. N. Pope, associate agronomist in barley investigations, will leave Washington April 15 for Sacaton, Ariz., where he will study and harvest the barley nursery at the United States Field Station.

Wm. H. Weston, Jr., of Cambridge, Mass., will come to Washington about April 15 to spend a week in conferences with scientists of the Department, to make studies on Physoderma, and to prepare a manuscript on the downy mildew on teosinte.

VISITORS

Dr. Margery C. Carlson, Research Fellow in Microchemistry at the Boyce Thompson Institute for Plant Research, Yonkers, N. Y., was an Office visitor on April 1 and 2.

L. A. Fitz, in charge of the Chicago office of the Grain Futures Administration, of the United States Department of Agriculture, called at this Office on April 6.

Dr. H. A. van der Lek, Research Botanist at the Agricultural University, Wageningen, The Netherlands, who is spending a year at Cornell University, Ithaca, N. Y., on a fellowship from the International Education Board, was an Office visitor April 6.

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# MANUSCRIPTS AND PUBLICATIONS

19 A manuscript entitled "A Report of the Barberry Eradication Campaign in Colorado, 1926," by E. A. Lungren, was submitted April 6 for publication in the Eighteenth Annual Report for 1926 of the State Entomologist of Colorado.

20 A manuscript entitled "Disturbances in Plants Induced by Sodium Chloride," by H. B. Parmele, was submitted April 6 for publication in the Journal of Agricultural Research.

21 A manuscript entitled "Inheritance of Winter Hardiness and Growth Habit in Crosses of Marquis with Minhardi and Minturki Wheats," by H. K. Hayes and O. S. Aamodt, was submitted April 8 for publication in the Journal of Agricultural Research.

22 A manuscript entitled "Studies in Natural Hybridization of Wheat," by C. E. Leighty and J. W. Taylor, was submitted April 9 for publication in the Journal of Agricultural Research.

23 A manuscript entitled "Barberry Eradication Pays," by E. C. Stakman, L. W. Melander, and Donald G. Fletcher, was submitted April 9 for publication as a cooperative bulletin of the Minnesota State Department of Agriculture.

Galley proof of article entitled "A Cytological Study of Orange Leaf Rust, Fuccinia triticina Physiologic Form 11, on Malakoff Wheat," by Ruth F. Allen, was read April 7.

The paper entitled "Some Factors to be Considered in Extending the Use of the Combine Harvester," by M. A. McCall, appears in Agricultural Engineering 7 (3): 88-90, illus. March, 1926. (This paper was presented before a meeting of the Farm Power and Machinery Division of the American Society of Agricultural Engineers, Chicago, December 1, 1925.)

The article entitled "Report of the Barberry Eradication Campaign in Colorado," by E. A. Lungren, appears in Colorado State Entomologist Circular 51: 79-82. June, 1926. (Seventeenth Annual Report for 1925.) (Received April 1, 1927.) (The barberry eradication campaign in Colorado is conducted cooperatively by the Office of Cereal Crops and Diseases, the Office of the State Entomologist and the Colorado Agricultural College.)

The article entitled "A Study of the Distribution of Tilletia tritici and T. laevis in 1926," by W. H. Tisdale, C. E. Leighty and E. B. Boerner, appears in Phytopathology 17 (3): 167-174, illus. March, 1927. (Received April 6, 1927.) (Investigations conducted cooperatively between the Office of Cereal Crops and Diseases, Bureau of Plant Industry, and the Grain Division of the Bureau of Agricultural Economics.)



The article entitled "Experiments with Dusts for Controlling Stripe Disease of Barley," by R. W. Leukel, James G. Dickson, and A. G. Johnson, appears in *Phytopathology* 17 (3): 175-179. March, 1927. (Received April 6.) (Investigations conducted cooperatively between the Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

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## FIELD STATION CONDITION AND PROGRESS

### HUMID ATLANTIC COAST STATES (South to North)

#### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)  
(March 10)

In general, fall-sown oats are making a very satisfactory growth this year and show no damage from cold.

#### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)  
(April 8)

As usual, no winter injury is evident in the plats of the adapted varieties of fall-sown wheat and rye, and the vigor of the plants is better than average for this time of the year. Winter barley escaped with less winter injury than usual, and the spring prospects are far above normal. Winter oats, however, show considerable reduction in stand, due largely to heaving-out and less so to actual freeze injury. Unfavorable weather at seeding time last October necessitated drilling the oat plats on two different dates, - October 5 and 11. The plants of most of the varieties sown on the latter date did not get well established and heaving was much more general than in the case of the earlier seeding. Injury by heaving also is much greater on the lighter and less productive land.

Maximum and minimum temperatures for December, January, February, and March were recorded as follows:

<u>Month</u>	<u>Maximum</u> (Degrees F.)	<u>Minimum</u> (Degrees F.)
December, 1926	50	9
January, 1927	75	9
February, 1927	71	25
March, 1927	81	18

Greenhouse activities this year are largely similar to those of past seasons. Much of the space is devoted to the growing of those distant crosses which can not survive our outdoor weather. F. A. Coffman, associate agronomist in oat investigations, has spent considerable time in hybridizing certain oat varieties in the hope of obtaining rust- and smut-free oats. Some greenhouse space also is occupied in the study of segregating forms from hybrids of Fulghum and the false wild oat.

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

#### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

#### HUMID MISSISSIPPI VALLEY STATES (South to North)

##### LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

##### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

##### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

##### IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

##### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)  
(March 27)

In March the entire time of R. W. Bills, agent, was devoted to educational activities in 35 high schools. Lesson-study material has been mailed to all high schools. Each package contained rust straw for use in laboratory classes. In many of the schools visited, Mr. Bills found that the common barberry and its relation to black stem rust already had been studied in the laboratory. With this background, the pupils were particularly interested in the subject. At the Toluca High School the public had been invited to attend the lecture. After the meeting, a farm boy reported the location of some barberry bushes on a neighbor's farm five miles out in the country. He promised to bring a sample of the bushes to the high school instructor. Mr. Bills has been cordially received by the instructors, one of whom stated that he thought this phase of the campaign was more important than the regular survey, as the ultimate success of the project will rest on each individual future citizen.

In March, 8,240 pieces of mail containing barberry literature were sent out to the rural schools of 75 counties. Several reports already have been received, and one teacher has sent in a specimen of common barberry which was collected in her district.

Considerable time has been devoted to the task of getting up some new demonstrations. A number of enlarged pictures were received from the Washington Office which will help greatly in making these demonstrations attractive.

A number of men were interviewed for positions in the eradication campaign. Each year this office receives an increasing number of applications, which may be taken as an indication that this project is getting plenty of satisfactory publicity.

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

#### OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)



## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (March 17)

Much educational work has been done this winter among the high schools, county and State normal schools, and rural graded schools. Most of the high schools in the State have responded to our letters offering educational material. Many requests have been received for bulletins, motion picture films, lantern slides, and samples of barberry and rusted grain. The Conference for the Prevention of Grain Rust, of Minneapolis, has supplied several sets of new panels to loan to high schools and normal schools.

Educational material also is being prepared for the use of graded schools and is being sent this year to schools in about one-half of the State. Suggested lesson plans are supplied with all of the educational material released. With the material sent to some of the counties a letter from the county superintendent of schools is enclosed.

Many of the field men who worked in the State last year will be back again this season. Dr. E. C. Stakman, of St. Paul, consented when in Madison on March 14, to talk to the majority of the men who will be working this summer.

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J.H.Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C.O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)  
(March 12)

I returned to Hays from Manhattan on March 9. At present I am getting out a considerable quantity of seed of spring grain for mail shipment to other points. Late next week I hope to do my own spring seeding.

In general, wheat seemed to be in good to excellent condition on the route from Manhattan to Wilson. From Wilson to Hays the ground seemed to be very dry, with little wheat growth. Furthermore, the farmers in this particular area have pastured their fields exceedingly heavily, due to shortage of rough feed last year. Prospects in the immediate vicinity of Hays did not look good to me, but yesterday (March 11) a rainfall of 1-1/2 inches over a good portion of western Kansas materially improved conditions, as the ground is now very wet. Wheat on the Cereal Project and on the Station farm looks much better than on the surrounding farms, but this probably is due to the fact that the fields or plats have not been pastured.

I had a very pleasant and profitable and busy winter at Manhattan. At a recent Station conference I was placed on two committees. One was for working out ways and means of distributing a new barley in Kansas. The second committee is to begin work on determining the ability of the better Kansas varieties of wheat to withstand shattering and lodging after ripening, important now that the combine is a factor.

(March 15)

Recent rains at Hays and throughout western Kansas have brightened the prospects for wheat and also will be of considerable help to spring crops. West of Hays winter wheat has not made much growth because of late germination. From Manhattan to about 30 miles east of Hays wheat generally is in excellent condition. In the vicinity of Hays many wheat fields have been pastured severely due to lack of feed in the country. The winter was mild, so that there has been no winterkilling, but there are fields that have suffered somewhat from soil blowing.

Preparations are about made for seeding barley, oats, spring wheat, and flax on the Cereal Project both in varietal plats and in the nursery. It is hoped to have the seeding completed by the middle of next week.

(March 29)

The seeding of all nursery and varietal plats of small grain was completed on March 26, under favorable conditions. Today (March 29) light showers are falling and the prospects are excellent for a quick and satisfactory germination.

#### COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)  
(March 14)

On March 1 our Station Bulletin 315, "Barberry Eradication and Sources of Black Stem Rust in Colorado," was off the press. This new bulletin, together with specimen envelopes and cards, has been sent to farmers, grain dealers, bankers, elevator men, newspapers, and seedsmen, in connection with our spring publicity. A supply of material is being made up to be used in Larimer County when the spring survey is started.

The class for barberry field men is being conducted every Monday evening under the direction of the State leader. Many are attending this course and are doing excellent work. The course will continue until field operations start this spring.

#### NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, G. F. Sprague)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulgars)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)



Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (March 16)

The weather of the past week has been exceptionally warm, reaching a maximum of 65 degrees F. on March 14. The minimum for the month was 11 degrees F. on March 1. A snowfall on March 1 supplied 0.25 inch of precipitation. The last of the snowdrifts have almost disappeared.

A stiff breeze yesterday and today brought intermittent snow flurries and colder weather. The ground is frozen again and will put a stop to any plowing which is said to have been begun in the neighborhood. The soil contains more moisture than at this time last year although not so much as in the average year.

Superintendent Leroy Moomaw returned to the Substation on March 1 after spending some time in Washington, D. C.

(April 1)

In the latter part of March the weather was changeable, but for the most part dry, windy weather has prevailed. There have been several dust storms, resulting in some drifting of the soil on fallowed land. Prior to March 31, the precipitation for the month was 0.59 inch. Last night a snow set in which amounted to about 0.40 inch of precipitation up to this morning.

The moisture probably came in time to save a small percentage of the plants in the winter wheat nursery. This nursery seemed to be in good condition when first uncovered by melting snow in February, but the dry winds caused rapid drying of the surface soil. Apparently most of the plants are now dead, but probably a few will revive as a result of the snow. The winter wheat varieties sown in plats in standing cornstalks still are in fairly good condition, as are the winter rye varieties sown in corn stubble. The wheat-rye hybrids sown on fallow apparently are about all dead.

A few farmers have done some field work,--plowing, disking, and harrowing being reported. A little seeding also is reported from parts of Stark County. At the Substation preliminary field work, such as raking thistles, has been done, and seeding probably will begin next week.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (April 2)

The season of 1927 opens with climatic and soil conditions a little more favorable than those of 1926. Monthly mean temperatures for January (12 degrees F.), February (16 degrees F.), and March (31 degrees F.) were above the averages of 9 degrees F., 13 degrees F., and 26 degrees F., respectively, for the previous 13 years.



Maximum and minimum temperatures for January, February, and March were as follows:

<u>Month</u>	<u>Maximum</u> (Degrees F.)	<u>Minimum</u> (Degrees F.)
January	44	-25
February	47	-15
March	56	7

The lowest temperature recorded in the winter was -25 degrees on January 20, compared with a normal minimum of -32 degrees.

The precipitation for the first three months of 1927 was 0.18 inch in January, 0.14 inch in February, and 1.17 inches in March, a total of 1.49 inches, compared with an average of 1.26 inches for the same period for the previous 13 years. This moisture should aid materially in the germination of seed. The supply of available soil moisture is, however, still far below normal as a result of the deficient rainfall in 1926.

Some wheat was seeded on farms in this locality before the end of March. At the Station an early seeding (March 30) of Kubanka wheat was made by the Office of Dry Land Agriculture.

The ice in the Heart and Missouri Rivers melted and went out about a week earlier than usual, without causing any flooding.

Present prospects indicate an exceptionally early start of spring work.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (March 30)

During the past winter the weather has been unusually mild, although the temperatures recorded are slightly lower than those of the winter of 1925-26. Temperatures for January, February, and March were higher than the normal. Precipitation for the months of January and February were lower than the normal, but in March it has been higher. The heavy rainfall in March has put the ground in fine shape for seeding spring grains, there being plenty of available moisture to germinate the seed.

Seed is now being prepared for sowing the nursery and replicated cereal plats.

Farmers have begun field work. A few have reported finishing the seeding of spring wheat. A plat of wheat was sown today (March 30) by J. T. Sarvis of the Office of Dry Land Agriculture, as an early date-of-seeding experiment.

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Fopha)

## WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(April 1)

In eastern Oregon we have had a late, cold spring. Winter wheat is not so far advanced as usual at this time of the year, but otherwise it is in good condition. There was very little winterkilling, even fall-sown Federation, of which there is a large acreage, especially in Umatillo County, not being damaged.

The precipitation of the late fall, winter, and early spring was considerably above the normal. The total for the seven-month period,-- September to March, inclusive, was 12.52 inches, or about one inch more than the normal for a 12-month period. The precipitation for March was 1.01 inches.

The lowest temperature recorded in March was 28 degrees on the 16th and the highest, 59 degrees on the 29th.

The seeding of spring grains on the Station was completed this week.

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (April 1)

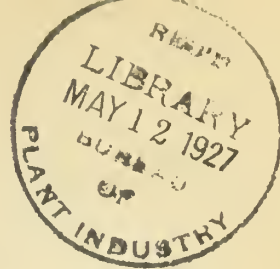
We returned to Biggs from Berkeley on March 14. Since then the weather has been rather cold and unpleasant, except for three or four days. It has been raining since last night and unless we have very favorable weather after this storm the preparation of the land and seeding of rice will be later than usual.

The precipitation recorded at the Station for the year to date is slightly below normal. From September 1, 1926, to March 31, 1927, inclusive, the total precipitation has been 18.96 inches, and the average for the same period for the past 13 years was 19.50 inches.

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 19

No. 8

April 20, 1927

Personnel (April 11-20) and Field Station (Apr. 1-15) Issue

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### PERSONNEL ITEMS

J. M. Hammerly, senior scientific aid in corn investigations, will leave Washington about April 23 for Florence, S. C., where he will plant the corn experiments plats at the Pee Dee Substation.

Dr. Wm. H. Weston, Jr., of Cambridge, Mass., formerly pathologist in charge of the investigation of downy mildew of cereals, arrived in Washington on April 13 to confer with officials of the Department, to make studies on Physoderma, and to prepare a manuscript on the downy mildew of teosinte.

### VISITORS

H. H. Storey, of the Natal Herbarium, Durban, South Africa, was an Office visitor on April 9. Mr. Storey is especially interested in the investigation of virus diseases. In South Africa, he is studying especially the virus diseases of maize, sugar cane, and peanuts.

Dr. V. Villadolid, of the University of the Philippines, Los Baños, P. I., was an Office visitor on April 15. Dr. Villadolid has spent three years in graduate study at Leland Stanford University, from which institution he has received the degree of Ph. D. in Zoology. He is visiting a number of institutions in the United States, and will return to the Philippines early in May.

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MANUSCRIPTS AND PUBLICATIONS

24 A manuscript entitled "Comparison of Selections of Coast Barley," by V. H. Florell, was approved April 12 for publication in the journal of the American Society of Agronomy.

25 A manuscript entitled "Further Experiments with Seed Treatments for Sweet Corn Diseases," by C. S. Reddy and J. R. Holbert, was submitted April 14 for publication in the Journal of Agricultural Research.

26 A manuscript entitled "The Common Barberry and Black Stem Rust," by E. C. Stakman, F. E. Kempton, and Lynn D. Hutton, was submitted April 16 for publication as a Farmers' Bulletin.

27 A manuscript entitled "Inheritance of Armedness, Yield, and Quality in Crosses between Bobs, Hard Federation, and Propo Wheats at Davis, California," by J. Allen Clark, Victor H. Florell, and John R. Hooker, was submitted April 19 for publication in the Department Bulletin series.

28 A manuscript entitled "Soil Factors Influencing the Development of the Mosaic Disease in Winter Wheat," by Robert W. Webb, was submitted April 20 for publication in the Journal of Agricultural Research.

Galley proof of article entitled "The Convergent Improvement of Selfed Lines of Corn," by Frederick D. Richey, for publication in The American Naturalist, was read April 11.

Galley proof of note entitled "Loose Kernel Smut on Feterita," by J. H. Martin and G. T. Ratliffe, for publication in Phytopathology, was read April 14.

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ATTENTION

April 7, 1927

P. B. A. Circular No. 67

Allowances for Operation of Privately Owned Automobiles

In a recent letter from the chief of the audit division of the General accounting Office the following language occurs: "Some of the bureaus of the Department of Agriculture in the audit of expense vouchers where charges of seven cent per mile for the use of the employee's own automobile are made, allow storage charges in addition to the commuted allowance while other bureaus deduct such charges before payment."

This indicates that at some points the significance is not understood of the amendment of former paragraph 33 (k) of the fiscal regulations made by Secretary's Memorandum No. 558 of September 29, 1926. Where mileage rates are authorized the new paragraph provides that they shall cover all operating expenses and thus excludes the allowance of charges for storage, tolls, ferry and towage previously authorized by the two closing sentences of the old regulation.

These new limitations should be carefully borne in mind both by those who make official use of personally-owned automobiles and by the bureau accounting officers.

(Signed) W. W. Stockberger  
Director,

Personnel and Business Administration

## FIELD STATION CONDITION AND PROGRESS

### HUMID ATLANTIC COAST STATES (South to North)

#### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)  
April 12)

The winter was unusually mild, and there was no real winterkilling in fall-sown oats. I am inclined to think that most of the reduction in stand in the plats resulted from the natural dying of the seedlings.

Oats are beginning to head early in this section, in fact, much earlier than usual. This is because of the mild winter weather. On the whole, oats are not in such good condition as they were last year at this time. Wheat is beginning to rust very badly. No rust has been seen on oats so far.

#### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey) (April 13)

The first ears of corn grown in the new corn greenhouse were harvested on April 13. These ears were from  $F_1$  crosses between varieties from high altitudes in South America and early maturing North American varieties. Some of the varieties from South America were so susceptible to smut that the crosses were smutted even in the greenhouse.

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

#### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett) (April 15)

The various lots of seed for nursery seedings have been received. The weather has been so wet and unfavorable, however, that very little spring seeding has been done so far.

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)



## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)  
April 15)

Considerable sorghum seed has been sold locally, but it is likely that the sorghum acreage will not be any larger than last year, for the reason that wheat came through the winter with a minimum loss.

So far, the weather this spring has been favorable for crops. Winter wheat has made almost too much top growth. Corn is all planted. Unless there is more frost, peaches have a chance to make a crop. Most of the apricots were killed by freezes in March.

The precipitation recorded since January 1 is as follows: January, 0.41 inch; February, 0.68 inch; March, 1.22 inches; April 1 to 15, 1.04 inches. The minimum temperature for the first half of April was 35 degrees on the 1st; maximum, 87 degrees on the 9th.

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker,

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fello

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston (April 7)

Investigations of leaf rust of wheat in Kansas, Oklahoma, and Texas have progressed very favorably during the past fall and winter. Winter-wheat nurseries were sown at Denton, Tex., and Stillwater, Okla., and at Harper, Columbus, Hays, Colby, and Manhattan, Kans. Spring-wheat nurseries have been sown at all of these stations except at Columbus and Colby. Both winter and spring seedings include varieties of wheat of known differential reaction to physiologic forms of leaf rust, varieties and selections which are promising from both pathologic and agronomic standpoints, and promising hybrid lines that have been developed in the process of studies on the inheritance of resistance to leaf rust. It is hoped that these nurseries may yield valuable information on the distribution and prevalence of physiologic forms of leaf rust in the Southwest and on the relative resistance of varieties, selections, and hybrids

Studies on the overwintering of leaf rust are in progress at several stations. The past winter was very mild and the rust overwintered in abundance at Denton, Tex., and Stillwater, Okla. Some winter survival also occurred at Harper and Manhattan, Kans. Leaf rust is developing very rapidly at Denton, Tex., and some damage to wheat already has resulted. A great deal of spring rainfall has favored the development of rust at that station,

Studies on the inheritance of resistance to leaf rust are being actively pursued at Manhattan, both in the greenhouse and in the field. The F<sub>3</sub> generation of 13 crosses was studied in the greenhouse this winter. An extensive F<sub>2</sub> generation also is being studied in the greenhouse, and a few new crosses are being made this spring.

A large number of collections of leaf rust were made in the Southwest in the spring of 1926. These were studied in the greenhouse during the past winter and the presence of physiologic forms was noted. Dr. G. L. Peltier, of the University of Nebraska, also kindly furnished a large number of leaf-rust collections from Nebraska which were included in these studies. Although the data have not been fully analyzed, it seems that several physiologic forms of leaf rust were present in the Southwest in 1926 but that form 9 probably was most widely distributed.

Inoculation of seedlings of well-known varieties of wheat with form 9 in the greenhouse has revealed the presence of resistant strains in a number of them. Such strains have been isolated and grown to maturity. One such isolation has proved to be particularly promising and has been given the name of Fulhard. It is being grown in plats at the Agronomy Farm this year.

Throughout most of Kansas, the prospects for a wheat crop are excellent. Recent rains have not only helped wheat but have been favorable for the spread of rust. An attempt will be made this spring to make a rust survey of the State in the winter-wheat belt of the Southwest.

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May, for G. F. Sprague) (April 16)

The seeding of the spring nursery was completed on April 6 and the seeding of the varietal plats of spring grain was finished on April 8. The second and third seedings in the date-of-seeding experiment with spring grain have not yet been made. The nursery material sown on April 2 and 4 has emerged.

The weather of the first half of April, particularly that of the second week, was very rainy and cloudy. Precipitation was recorded on nine of the 16 days. A total precipitation of 3.50 inches was recorded, which is 1.35 inches above the normal for April. Fortunately, all of the spring seeding had been done before the rainy period set in.

The minimum temperatures recorded for the first 16 days of April were 28 and 29 degrees on April 1 and 2, respectively. The maximum temperature was 72 degrees on April 3 and 6.

Official visitors at the Substation since April 1 were Prof. W. W. Derrick and A. D. Webber of the Animal Husbandry Department of the Nebraska Agricultural Experiment Station.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)



## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Maycue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (April 16)

Seeding had become general in this locality by the first of the week, but it was interrupted by showers and light snowfalls in the latter part. Seeding of the rotation plats at the Substation was completed on April 13. Thirty varieties of spring wheat were sown April 14 in quadruplicated plats. Rain and snow amounting to 0.80 inch fell on the 15th and 16th and prevented the seeding of the varieties of oats and barley this week.

The showers and the snow early in the month put the soil in excellent condition for seeding, and now the ground is well soaked. The total precipitation for April to date, including the snowstorm on the night of March 31, was approximately 2 inches. The normal rainfall for April is 1.21 inches.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (April 16)

Probably more than half of the wheat acreage in Morton County is seeded already. In Burleigh County, however, just east of the Missouri River, the fields generally have been too wet for field work.

In this locality there is plenty of moisture near the surface to give crops a good start. There probably is little moisture stored below the first foot, however, so that considerably more rain will be needed to produce good crops.

The weather of the first half of April has been almost continuously cloudy with practically no sunshine and frequent showers. The precipitation for this period amounted to 1.16 inches, of which 0.52 inch fell in slow steady showers on April 14 and 15.

Temperatures have been moderate, considering the almost complete lack of sunshine. The maximum temperature for the first half of April was 66 degrees on April 3; minimum, 28 degrees, April 5 and 9.



Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (April 16)

Field operations were begun at the Station on April 4. Land for the wheat, oats, and barley plats was disked on April 11.

The wheat varietal plats were seeded on April 14. The soil is in excellent condition, containing plenty of available moisture for germination of the seed. Although there is plenty of moisture in the surface soil to a depth of 18 inches the subsoil is very dry.

Seed of the various hybrids and varieties for seeding the cereal nursery is being prepared.

#### MONTANA

16) Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles) (April 16)

Winter wheat has made some growth and is now showing green, with apparently very little damage from winterkilling.

Field work will not be started again before the first of May. A few farmers started plowing about April 8, but were able to continue for only one or two days.

The total precipitation for March was 0.56 inch, as compared with a normal of 0.81 inch. For the first half of April the precipitation was 1.15 inches, as compared with a normal of 1.29 inches for the month. Most of the April precipitation has been in the form of snow, which has not drifted. It is still snowing this morning.

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

WESTERN BASIN AND COAST AREAS (North to West and South)

#### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

#### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell) (April 15)

The recording of notes on heading has been in progress since the middle of March. The earliest of all the cereals this season was a segregate of Hard Federation X Bunyip, which began heading on March 14. Most of the barleys have begun to head and a number of varieties are fully headed. A number of the wheats also are in the same stage. Fulghum and a few very early varieties of oats have begun to head.

The usual infection of leaf diseases of barley are in evidence. The Helminthosporium and Rhynchosporium diseases probably will be abundant. A few specimens of barley with leaf rust have been observed.

Weather conditions in March were favorable for cereal crops. The precipitation of 1.07 inches was considerably below normal. The fair weather was especially welcome after the rainy winter months. Farmers who had their land prepared were enabled to sow their grain during the latter half of March, when there was no rain. However, the acreage of winter grain this year will be considerably reduced because farmers were unable to plow their land. This acreage will be fallowed in preparation for a grain crop next year.

In the period from April 1 to 9 a precipitation of 2.47 inches was recorded. This already is much above normal. The heaviest rainfall--0.96 inch--was recorded on April 2. It was accompanied by a strong wind that caused the early-sown grains to lodge badly. The nurseries were down flat for several days, but they straightened out pretty well again with the exception of the barleys which are still badly tangled. The lodging is interfering to some extent with the normal heading of the varieties.

The total seasonal precipitation to date is 18.3 inches. This already is more than one inch above the normal.

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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C E R E A L   C O U R I E R

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 9

April 30, 1927  
Personnel (April 16-30) and Project Issue

P E R S O N N E L   I T E M S

J. M. Hammerly, senior scientific aid in corn investigations, planted the corn experiment plats at the Pee Dee Substation, Florence, S. C., on April 25 and 26. The weather was very dry and cold. There had been no rain for six or seven weeks. Light frosts on April 21 and 22 had done some damage to cotton and tomatoes. Farmers were just planting corn and setting tobacco. Cotton on the Substation had made a good stand but was not looking well on account of the cold weather. Oats and rye looked well. There will be no peaches this year.

Dr. H. V. Harlan, senior agronomist in charge of barley investigations, sailed from New York on April 29 for England. He will visit barley malting stations in company with H. J. Besley, of the Bureau of Agricultural Economics, in the interests of the grade and quality of American barleys. They will return about the end of May.

Dr. A. G. Johnson, senior pathologist in charge of cereal disease investigations, and R. W. Leukel, associate pathologist in charge of nematode investigations, spent April 29 in the vicinity of Rockville and other places in Montgomery County, Md., collecting wheat seed for the study of nematode infection.

Prof. W. W. Mackie, collaborator in the cooperative investigations of stem rust of wheat, leaf rust of barley, and the smuts of wheat and barley, at the California Agricultural Experiment Station, Berkeley, wrote on April 19 that he had recently made inspections in the Santa Clara, Salinas, San Joaquin and Sacramento Valleys in regard to cereal diseases. He says:



"I found that septoria is causing considerable damage in all the early sown fields. It also is causing more damage at Davis than usual, attacking practically all of our wheats very severely. Barley scald is causing considerable damage in the central portion of the State. It is prevalent in all parts but is not very severe, except in the central portion. Net blotch of barley has caused a great deal of leaf pruning in early sown barley everywhere. Halo blight of oats is also more severe than usual. Leaf rust of wheat and barley, stripe rust of wheat, and crown rust of oats all have made their appearance. Crown rust is epidemic on wild oats. Conditions appear to be favorable for epidemic of stem rust over the larger portion of the State. This, of course, can not be determined until the grain is well in head.

"You will be interested to know that a check on the mills shows that the bunt in the State is of very small consequence. The records show that 95 per cent of the wheat was docked for bunt before we started our campaign and not more than 5 per cent showed traces of smut and few samples are sufficiently bunt to cause dockage. The copper carbonate method is used universally in California."

H. H. McKinney, pathologist in charge of cereal virus disease investigations, wrote from London on April 20 the day after his arrival from Africa, that he would sail from Southampton April 30 on the "Arabic" of the Red Star Line, which is due in New York May 9.

Mr. McKinney was planning for conferences with some of the scientific men in England in the interval before sailing.

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#### VISITORS

Prof. D. N. Borodin, American representative of the Russian Bureau of Applied Botany and Plant Breeding, with headquarters in New York City, was an Office caller April 27 and 28.

Dr. Georg Blohm, Privatdozent d. Landwirtschaft a. d. Universität, Halle a. S., Germany, has been in Washington since April 20, planning an itinerary in the midwestern United States to study agronomic problems. He will leave about April 30 to visit the following States in the order named: Ohio, Indiana, Illinois, Missouri, Kansas, Iowa, Wisconsin, Minnesota, South Dakota, and North Dakota. Dr. Blohm also will travel in the Province of Manitoba and then back to Michigan, where he will study the sugar-beet industry.

Dr. Douglas H. Campbell, Professor Emeritus of the Department of Botany, Leland Stanford University, was an Office visitor at the time of the meetings of the National Academy of Sciences in Washington.

Dr. R. A. Emerson, head of the department of plant breeding and dean of the graduate school of Cornell University, who has been in Washington attending the meetings of the Executive Committee of the Division of Biology and Agriculture of the National Research Council, and of the National Academy of Sciences, was an Office visitor on April 22 and 25.

Dr. N. J. Giddings, head of the department of plant pathology, West Virginia University, Morgantown, West Va., was an Office visitor on April 25.

Hugo Miatello, Jr., agricultural engineer and chief of the Rural Development Department of the Central Argentine Railway, with headquarters at Buenos Aires, was an Office visitor April 23. Mr. Miatello is interested primarily in dry-land wheat and grain sorghum, cotton and sugar cane. He will leave Washington April 25 for the Pacific Coast by way of Manhattan and Hays, Kans., probably stopping also at Woodward, Okla. He will go to Berkeley and Davis, Calif., and later will visit the cotton stations in Texas and sugar experiments in Louisiana.

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MANUSCRIPTS AND PUBLICATIONS

29 A manuscript entitled "Black Stem Rust and the Barberry Eradication Campaign in Wisconsin," by W. A. Walker, was submitted April 25 for publication as a bulletin of the Wisconsin State Department of Agriculture.

30 A manuscript entitled "Bacterial Stripe Blight of Oats," by Charlotte Elliott, was submitted April 29 for publication in the Journal of Agricultural Research.

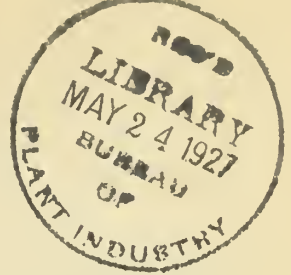
31 A manuscript entitled "A Field Method of Insuring Positive Attack with Some Cereal Diseases," by W. W. Mackie, was approved April 30 for publication in Phytopathology.

32 A manuscript entitled "Morphological and Cytological Studies of an Oat from Ethiopia," by T. R. Stanton and E. Dorsey, was approved April 30 for publication in the Journal of the American Society of Agronomy.

Galley proof of article entitled "Harvesting Wheat with a Combined Harvester-Thresher in the Great Plains Area, 1926," by R. S. Kifer, W. R. Humphries, and J. H. Martin, was read April 21. This will be printed as a preliminary report.

The article entitled "The Nitrogen Compounds of the Rice Kernel as Compared with Those of other Cereals," by S. L. Jodidi, appears in the Journal of Agricultural Research 34 (4): 309-325. February 15, 1927. (Received April 27) (Cooperative investigations between Office of Plant Geography and Physiology and the Office of Cereal Crops and Diseases.)

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## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 10

May 10, 1927

Personnel (May 1-10) and Field Station (April 1-30) Issue

### PERSONNEL ITEMS

Charles E. Chambliss, associate agronomist in charge of rice investigations, left Washington May 3 for Havana, Cuba, arriving there on May 5. Mr. Chambliss is going under the auspices of the Tropical Plant Research Foundation, Dr. W. A. Orton, Director, to determine the possibilities or probabilities of growing rice as a commercial crop on some of the sugar-cane plantations of Cuba. He will return to Washington about June 1.

Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, and F. D. Richey, agronomist in charge of corn investigations, left Washington on May 5 to spend about two weeks in the corn-borer regions of Ohio, Michigan, and Ontario to study agricultural processes and the methods employed in controlling the corn borer.

### VISITORS

Prof. Nickolas Schmitz, extension agronomist of the Pennsylvania State College, was an Office visitor on May 10. He was interested especially in obtaining information on new varieties of oats and barley adapted to Pennsylvania conditions.



### MANUSCRIPTS AND PUBLICATIONS

33 A manuscript entitled "The Inheritance of Awnedness in Rice," by Jenkin W. Jones, was approved May 9 for publication in the Journal of the American Society of Agronomy.

34 A manuscript entitled "Further Studies on the Soil Relationships of the Mosaic Disease of Winter Wheat," by Robert W. Webb, was submitted May 9 for publication in the Journal of Agricultural Research.

35 A manuscript entitled "Broomcorn Experiments at the Woodward Field Station in Oklahoma," by J. B. Sieglinger, was submitted May 10 for publication as a technical bulletin.

36 A manuscript entitled "Factors Affecting the Popping Quality of Pop Corn," by J. G. Willier and Arthur M. Brunson, was submitted May 10 for publication in the Journal of Agricultural Research.

Page proof of Department Bulletin 1481 entitled "Experiments with Fall-Sown Oats in the South," by T. R. Stanton, R. R. Childs, J. W. Taylor, and F. A. Coffman, was read April 30.

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### TRANSLATIONS

Bokura, U. Investigation on Typhula graminum Karst. Preliminary Report. (Mugirui no Kinkakubyō ni Kwensuru Tyōsa.) Byōchū-Gai Zasshi (Jour. Plant Protect.) [Tokyo] 13 (8): 476-489. August, 1926. (Abstract made by M. Yoshikawa, Washington, D. C., January, 1927.)

Carbone, Domenico. Studies on the Immunitary Reactions of Plants. I. Introduction. (Studii sulle reazioni immunitarie delle piante. I. Introduzione.) Bol. Ist. Sieroteria. Milan. 2: 261-265. August 31, 1922. (Translation by H. B. Humphrey, Office of Cereal Crops and Diseases, February 24, 1927.)

Carbone, Domenico and Italo Cortese Vigliano. Studies on the immunitary reactions of plants. II. On the presence of agglutinating, precipitating, haemolytic, and antihæmolytic substances in plants. (Studi sulle reazioni immunitarie delle piante. II. Sulla presenza nelle piante di sostanze agglutinanti, precipitanti, emolizzanti ed antiemolitiche.) Bol. Ist. Sieroter. Milan. 2: 267-274. August 31, 1922. (Translation by H. B. Humphrey, Office of Cereal Crops and Diseases, February 21, 1927.)

Hiratsuka, N. Report of Investigations of the Flax Wilt Disease. (Amatachigare byo Kenkyu Hokoku.) Industries in Hokkaido (Hokkai no Shokusan) No. 84: 365-416. June, 1897. (Translated by M. Yoshikawa, Washington, D. C., January, 1927. Some tabular matter omitted.)

Piròvano, Alberto. On the possibility of Hybridizing Distantly Related Species by Means of Ionolysis. (Sulla possibilità di ibridare specie poco affini col mezzo della jonolisi.) Atti R. Accad. Naz. Lincei, Rend. Cl. Sci. Fis., Mat. e Nat. 3: 762-767. 1926. (Translated by H. B. Humphrey, Office of Cereal Crops and Diseases, January, 1927.)

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The foregoing list supplements the lists published in earlier numbers of the Cereal Courier, as follows:

Vol. 13: 12-15, 52, 69 and 225-226. 1921

14: 38, 39 and 99-100. 1922

15: 11-13 and 46-47. 1923

16: 16-18 and 127. 1924

17: 62-63 and 326-327. 1925

18: 4-5, 335. 1926

Copies of these translations are on file in the Library of the Bureau of Plant Industry.

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FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (May 2)

During the month of April the Station work progressed favorably. All plats were disked and floated down, leaving them in condition for easy preparation when seeding begins. From April 26 to 28 the rice nursery was seeded. The nursery comprises about 800 head rows and about 1,300 short rows of new introductions.

The cotton plats were seeded on April 1, but the seedlings died in such large numbers because of the cool weather that it was necessary to replant about April 30.

From April 22 to 24, inclusive, rather low temperatures prevailed. Light frost was reported on the morning of the 23rd, with a temperature of 42 degrees. This low temperature caused rice plants to turn yellow, and in some sections it was reported that rice had died, either from the cold weather or from seedling blight, which often occurs during cool weather in early spring.



The weather in April was in the main favorable for seeding, especially where the land had been plowed and disked some time before seeding. Where disking was delayed, the soil dried out rapidly, making it impossible to obtain a good seed bed.

The total precipitation for the month amounted to 1.84 inches, which is 5.84 inches less than last year, and 2.33 inches less than the 17-year average for the same period. On the 16th, 1.60 inches was recorded. Strong north winds followed, causing lands to dry out rapidly. The condition caused poor stands of rice in many instances, especially in fields that were rather cloddy at the time of seeding.

Among the visitors at the Station in April were A. C. Dillman, associate agronomist in charge of flax investigations, and C. D. Castro of Buga, Colombia.

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

#### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

#### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)  
(May 6)

Spring operations have progressed rapidly and are now completed. The first planting at the Station, a small crossing plat, was made April 18 on bottom land. Four sections of the breeding field at the Station were planted April 20, and on the same date one acre of Jarvis Golden Prolific (for analytical data) was planted on Cherokee Farm across the River. Two remaining sections of the breeding field were planted April 25 and a test range of good and fair selection seed from Neal Paymaster corn on April 26.

Three acres of Arlington Piedmont and an equal area of Jarvis Prolific, from which to obtain an increase supply of certified seed, were put in on the farm of R. M. Murphy, Knox County. Two acres of Mayland Piedmont were planted at Sweetwater, Nolan County, and a similar area at Greeneville, Greene County. Seed of Jarvis Prolific has been sent for trial to the farm of Dr. H. A. Morgan, President of the University of Tennessee, at Mentor, Blount County, and to Mountain City, Johnson County.



Of the regional type tests, one plat was planted on May 3 on the farm of N. C. Myers, Greeneville, Greene County. Another is to be put in next week in Putnam County on the Cumberland Plateau, and the others will follow as soon as possible.

#### IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith) (May 3)

During the past winter educational material was mailed to 919 normal training, consolidated, and other approved high schools of the State. In addition, material was sent to 528 instructors of rural graded schools.

The material sent to teachers consisted of specimen envelopes, bulletins, a lesson plan, Plates I and II, Rust Loss statements, a return card, and a letter of endorsement from the State Superintendent of Public Instruction.

Teachers in grade and high schools have shown much interest in our educational campaign. We already have received information from some of them as to the location of barberries. Many have written, asking for additional material.

More than 13,000 envelopes containing bulletins, a letter and a return card have been addressed to holders of rural free delivery boxes. The envelopes will be mailed late in June to the counties where second survey is to be made this year.

Observations were made of barberries in Marshall and Story counties on April 14 and 15; the leaves were just unfolding.

The writer inspected barberries in and near Maryville, Mo., on April 27. Pycnial infection was found on some of them. Pycnial infection also was found on barberries in Wayne County, Iowa, on April 28. This is the first infection of barberries found in Iowa in 1927.

#### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert) (May 5)

We are planning to begin our first field planting this afternoon.

Farm operations in general are very much delayed. Farmers had not been able to do as much fall plowing as usual on account of the weather conditions. Many of the fields are still too wet to work. We are anticipating some long hours during the next two weeks.

Incidentally, there have been more demands for material and special seed for experimental work during the past six months than during the past five years. Among these requests is an order from the University of Chicago for 15 pounds of good seed and 15 pounds of Gibberella-infected seed. This request we have been unable to fill.

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer) (May 6)

Three field agents began operations on Monday, May 2, near Rochester, Fulton County. They found about 40 escaped common barberry bushes in a woods. The bushes were rather heavily infected with stem rust. Pycnia were found on from 20 to 50 leaves on each bush. It is interesting to know that last year a 20-acre field of wheat adjoining this woods yielded only five bushels per acre. The average for this section of the State in 1926 was about 25 bushels per acre.

#### OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer) (April 30)

Five agents of the United States Department of Agriculture started original survey in Vinton County on April 1. The topography of the county is very rugged. The county is not large and good roads are scarce, comparatively speaking. The wet clay roads made travel difficult. The truck that was stuck in a mud hole only once each day was faring above the average. In spite of these adverse conditions the county was completed by the original survey before the close of the month. All the men who did the work had had previous experience in barberry eradication. Only one rural property having cultivated barberries was found in the county. No plantings were located in the towns.



The survey method used in Vinton County was identical with that used in adjacent counties in southeastern Ohio in 1926. It seems that this method may be referred to correctly as the "modified intensive" original survey plan. By these terms is meant the inspection, on foot, of every farm yard, garden, and orchard in a given area for the purpose of finding cultivated barberries. According to this plan, the "intensive" original survey method is called into use only when barberries are found that are old enough to bear seed. Wherever old barberries are discovered, all woodlands, fence rows, roadsides, and stream banks are to be foot-scouted for escaped barberries for such radial distance as will insure the finding of the escaped bush which is farthest from the source of spread. In the light of past experience it is believed that the "modified intensive" survey method should be used in the seven remaining counties of southeastern Ohio which as yet have not been touched by original survey. Of course, the sudden discovery of large areas of escaped Berberis vulgaris, or the finding of B. canadensis in the woodlands, will be sufficient cause for altering the survey program in the southeast.

Each day in late March and early April an inspection was made of barberries at Columbus to detect the early appearance of pycnia. The periodical unseasonably warm weather in March served to bring out the leaves on the bushes. The writer first discovered pycnia on barberries this year at Columbus on April 11. So far as is known, this date is the earliest on which pycnia have ever been reported within the barberry-eradication area. On April 11, 1922, pycnia were found by the writer on barberries near Yellow Springs. Aecia were first found this year at Columbus on April 27.

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

#### WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

#### MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry  
Eradication, L. W. Melander) [May 7]

The spring campaign in Minnesota was started on Monday, May 2. Four field agents were placed in the field on resurvey. The plan is to complete the resurvey of Goodhue County and go on to Wabasha, Winona, and Houston counties. The resurvey this year is to consist of the inspection of places where barberries have been found before and, in addition, the inspection of all groves and other places where shrubs can grow within a reasonable distance of the planting. No definite distance can be set, because each individual case is governed by various conditions. Probably it will not be possible to finish these four counties by July 1, at which time the resurvey activities will be terminated. However, they will be resumed this fall or in the spring of 1928.

A very close watch will be kept for a spread of rust from barberries. The first pycnia on barberries were found in Afton Township, Washington County, on April 29. In southern Minnesota, uredinia should appear about May 20.

Weed inspection conferences will begin on May 15. There will be four circuits which will continue until about July 1. There are scheduled 123 meetings. The barberry problem will be presented at each meeting. Those in attendance will be township chairmen, town board members, interested farmers, county commissioners, mayors, county agents, and others. The average attendance at each meeting usually is about 25. The cooperation of this organization, which has charge of weed inspection in the State, is aiding the barberry campaign more each year and has the potentialities of becoming a very effective organization for keeping localities free from common barberry.

So far this spring, one location of common barberry has been found by members of the biology department of a high school to which lesson plans had been sent. As soon as the weather permits the school children to roam through the woods, more reports probably will be received.

GREAT PLAINS AREA (South to North)

OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)  
(May 4)

Wheat continued to grow normally during the last half of April; it is jointing at the present time.

Winter barley at the Station began to head on April 28. Some varieties are all headed now. Winterkilling in the barley nursery was confined to certain varieties.



The writer, accompanied by E. F. Chilcott and L. F. Locke, attended the Round-Up at Hays, Kans. The first half of the trip was made by automobile in an easterly direction from Woodward. The return trip was made over a westerly route. From Woodward, Okla., to Pratt, Kans., north to Russell and west to Hays, wheat was farther advanced than is usual at this time of year. The acreage is high and very little land is available for row crops. Between 90 and 95 per cent of the cultivated land is in wheat. From Hays to Colby, Kans., the prospects for wheat are poor. South of Colby, wheat is in good condition. South of Garden City, wheat is not so far advanced as farther east, but it has a chance to produce a fair crop. From Garden City to Englewood, Clark County, wheat was in good condition but not so promising as a year ago. With the exception of the area between Hays and Colby, wheat has an excellent chance to make a good crop, depending upon the quantity of rainfall between now and harvest time. Combines are in evidence all along the route. With the exception of a few very sandy districts and the area between Hays and Colby, there is very little land available for row crops, as wheat occupies almost everything.

Maximum temperature for the last half of April, 92 degrees on the 28th; minimum, 29 degrees on the 21st. A precipitation of 1.16 inches was recorded, which makes a total for April of 2.20 inches.

#### KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C.O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)  
(May 2)

The weather in April was favorable for fall crops and early seeded spring crops. There were frequent showers. Winter wheat has tillered vigorously and probably is a week ahead of the normal season. Spring oats and barley have made a very good start. Fields that have been tilled so as to hold the surplus rainfall are in excellent condition for a good sorghum or corn crop.

The Fifteenth Annual Cattlemen's Round-Up of the Hays Branch Experiment Station was held April 30. About 1,200 people from the western half of Kansas were in attendance. The various departments of the Station were inspected in the forenoon. In the afternoon session the visitors were addressed by John Fields, Vice President of the Federal Stock and Land Bank of Wichita, and Dean H. J. C. Umberger, of the Extension Division of the Kansas State Agricultural College. Dr. C. W. McCampbell, head of the department of animal husbandry at Manhattan, presented the results of feeding experiments.

In one of the experiments it was found that a ton of shocked kafir produced 47.7 per cent more gain than a ton of kafir silage, when each was supplemented with alfalfa hay, and 106.4 per cent more when each was supplemented with cotton-seed cake. An acre of kafir silage produced 71.4 per cent more gain, however, than an acre of shocked kafir when each was supplemented with alfalfa hay, and 22.4 per cent more when each was supplemented with cotton-seed cake. This acre advantage in favor of silage is much less than has been obtained for a number of years at the Hays station and probably can be explained by the fact that the growing season of 1926 was unusually dry and because the smaller quantity of shocked kafir produced in a very dry season is always worth more pound for pound than that produced under more favorable growing conditions when a rank growth is obtained. On the other hand, this better roughage is not so greatly improved in the silo as the ranker, coarser growth produced under more favorable growing conditions.

On the day preceding the Round-Up, the annual Livestock and Grain Judging Contest was held at the Station. In addition, a judging contest for girls along home economic lines was inaugurated for the first time. Approximately 215 high school boys and girls and club members took part in these contests. Appropriate cups and medals were awarded to winning teams and individuals. In the evening, the Hays Chamber of Commerce gave a banquet to the contestants and their coaches. Dean L. E. Call, director of the Kansas Agricultural College, was the principal speaker of the evening.

#### COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

#### NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May, for G. F. Sprague) (May 2)

Soil moisture conditions and temperatures in the latter half of April were very favorable for rapid growth of small grains. Winter wheat is six or seven inches high, and the spring grains are about three inches high.

All spring seeding of small grains is completed, including that in the date-of-seeding experiment with spring grain. We may begin planting corn next week. The nursery rows have been trimmed and the plats have been marked ready for trimming. About one-half of the nursery stakes are ready to be placed at the end of the rows.

The total precipitation recorded in April was 3.31 inches as compared to the normal of 2.07 inches. Precipitation was recorded on 15 days of the month. The maximum temperatures recorded in April were 39 degrees, 32 degrees, and 30 degrees F. on the 26th, 27th, and 30th, respectively. The minimum temperatures were 19 degrees, 25 degrees, and 32 degrees on the 20th, 21st, and 22d, respectively.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (May 2)

Seeding of varietal plats of cereal crops at the Substation is completed with the exception of flax, corn, and proso. All varieties and hybrids for row tests have been sown, and in another day the seeding of the head rows and the smut nursery will be finished.

Cereal crops sown in the first half of April are now emerging with apparently good stands. Winter wheat sown in standing corn is in good condition, considering that only a light growth was produced last fall. Winterkilling was severe in the hybrid winter-wheat nursery. Survival counts have not yet been made, but apparently there is considerable difference in the survival of different strains.

Wheat seeding is almost finished in this locality. Some fields of oats and barley remain to be sown. Indications point to an increased acreage of corn and other forage crops.



The total precipitation for April was 2.10 inches, nearly all of which fell in the first half of the month. The maximum temperature was 76 degrees on April 26, and the minimum was 15 degrees on April 20.

Field operations were halted at noon today by a dust storm that later turned to rain.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr. ) (May 2)

Land was prepared on April 19 and 20 for the flax plat and nursery seedings. The first seeding of the flax date, rate, and tillage experiment was made on April 20 and emerged with good stands on May 1. The second seeding was made on April 30. The flax and wheat mixtures were sown on April 27. Seed and labels are being prepared for the flax nursery.

Climatic conditions have favored an early spring. The prairies are turning green and the leaves are coming out on the trees.

Rains in the latter half of April amounted to only 0.21 inch. On May 2, however, 0.28 inch was recorded, and this morning there was another heavy shower which has not yet been recorded.

Temperatures have been very mild. The maximum temperature was 75 degrees on April 26; minimum, 17 degrees on April 19. No freezing temperature has been recorded since April 22.

O. D. Howell, Superintendent of Building, Dairy Division, and an assistant, Elmer Barr, arrived from Washington, D. C., on April 30, to take charge of the construction of the new dairy station.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (May 2)

Seeding of the varietal plats of spring grain was finished on April 27. Wheat seeded on April 14 had emerged on the 27th with uniform stands. The oat varieties sown on April 20 are beginning to emerge today.

The seeding of the wheat nursery was completed on April 28. Showers today, May 2, should produce a quick and satisfactory germination of all seed now sown.

Stand counts of the winter-hardiness nursery were taken April 26. While the winter temperatures were less severe than usual, there were only a few plants alive. Winter rye used as a check survived the winter with good stands.



## MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

## WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe) (April 30)

The weather at this time is very favorable for crops. Most of the small grains have emerged.

It is planned to make some changes in the buildings at the Substation. The old workshop and storage room will be made into office space and the grain-cleaning room will be converted into a laboratory. The barn and some of the other buildings will be moved eastward and the machine shed will be extended on the south, utilizing the space at present occupied by the barn. This new extension of the machine shed will house the grain-cleaning machinery and also will furnish storage space.

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines) (April 27)

About two years ago, with the idea of producing satisfactory smut-immune varieties of spring wheat and oats for Washington State, we began developing some crosses between the immune varieties, Redit, White Odessa, Martin, and Hussar, with the spring varieties, Bluestem, Baart, Jenkin, and Marquis. This year we have arrived at the third generation of these crosses, where the real work begins. Last fall we seeded 400  $F_3$  families from these crosses, and on April 15 and 16, 1,600 additional families. Our spring is about two weeks later than usual and there is an abundance of moisture in the soil.

We also have nearly 200  $F_3$  families of oats in which Markton is the immune parent, with Banner, Swedish Select, Large Hull-less, and Chinese Hull-less as the susceptible parents. From some of this material we ought to be able to develop a variety or two of spring grain of agronomic worth. Incidentally, it will give us enough genetic material to keep us out of mischief for some time to come.

In addition to this material, we have put in 359 7-foot rows for John H. Parker, of Manhattan, Kans., these being crosses of "American Club" with Red Fife and White Fife. This material of Parker's is some  $F_3$  material which he started while at Cambridge, England, last year in work with Professor Biffen. I hope he will be able to visit us next summer and help with the harvest, as we shall have plenty of troubles of our own in looking after our own material. From a selfish standpoint, the inspiration of having Parker with us for a week or two should be worth while.

#### OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(April 26)

Our spring weather thus far has been very unfavorable. We have had no rain for more than a month. There already have been 15 days in April with minimum temperatures of 32 degrees or lower. On the night of the 20th we had a minimum temperature of 21 degrees, the lowest ever recorded in April. This frost did immense damage to fruit in eastern Oregon and Washington and also damaged cereals to some extent. In Umatilla County, fall-sown Federation wheat, which was in the jointing stage, was very severely damaged, according to newspaper reports. On the Station farm very little injury was done to winter wheat, but the spring barleys were thinned out considerably. Some injury also was apparent in a number of spring wheat plats, but the oats escaped with hardly any injury.

The dates for the meeting at Moro of the western section of the American Society of Agronomy have been set for June 28, 29 and 30.

#### CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell) (May 2)

Nearly all of the varieties in the cereal nursery are now fully headed. Those not yet headed are the winter-habit and late spring varieties of wheat and oats. Smyrna (C. I. No. 195), which is one of the earliest varieties of barley, will begin to ripen in a few days.

The cereals that were badly lodged by a wind and rain storm early in April have straightened up remarkably well. However, a number of the barleys and oats and the weak-strawed wheats still are more or less badly lodged. The wheats are strikingly more erect than the barleys and oats, which condition may be traced back to an extensive use of stiff-strawed varieties in their ancestry.

\* Most of the cereal varieties in the plats also are fully headed, although they were sown about five weeks later than the nursery varieties. They are generally in excellent condition, and so far there has been no lodging.

A number of wheat crosses have been made.

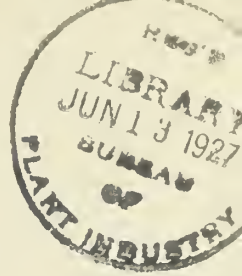
Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)  
[April 20]

I have some experiments with covered smut on barley in the greenhouse that are just coming to maturity. Apparently satisfactory smut infection has been obtained again.

Professor Mackie has just returned from Davis and reports that the nurseries are in first-class condition.

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## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 19

No. 11

May 20, 1927

Personnel (May 11-20) and Field Station (May 1-15) Issue

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### PERSONNEL ITEMS

George H. Allen was given a temporary appointment on May 18 to assist Prof. W. W. Mackie in the cooperative cereal-disease investigations and experiments at Davis, Calif.

J. Allen Clark, agronomist in charge of western wheat investigations, will leave Washington on May 31 to visit field stations in Kansas, California, Oregon, Washington, Idaho, and Utah. He will inspect cooperative cereal experiments, particularly with wheat, study wheat varieties and hybrids in breeding nurseries, and observe wheat conditions in general.

Dr. Ernest Dorsey, of the plant breeding department of the Cornell University Agricultural Experiment Station, Ithaca, N. Y., and agent in the cooperative plant breeding work, will leave Ithaca May 20 for Davis, California, where he will take notes on and harvest hybrids in the cooperative wheat breeding nursery and inspect cereal experiments. Dr. Dorsey also will confer with officials of the California Agricultural Experiment Station at Berkeley. He will then proceed to Oregon to confer with State and Federal officials at Corvallis and Moro. On the return trip from the Pacific Coast Dr. Dorsey will visit St. Paul, Minn., and Manhattan, Kans., to confer with experiment station officials.

Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, who returned on May 13 from a short trip in the corn-borer region, left Washington May 15 for Sacaton, Ariz., to take notes on and harvest varieties in the cooperative breeding nursery on the United States Field Station. He also will confer with cooperators and experiment station officials at Columbus, Kans., Knoxville, Tenn., and Marshall and Swannanoa, N. C.



John H. Martin, agronomist in charge of grain sorghum and broomcorn investigations, will leave Washington May 23 for State College, Pa., where he will confer with officials of the Pennsylvania Agricultural Experiment Station regarding cereal experiments and methods of harvesting small grains. Mr. Martin will return about May 27.

Karl S. Quisenberry, associate agronomist in western wheat investigations, will leave Washington about June 1 to visit field stations in Texas, Oklahoma, Kansas, Colorado, Wyoming, and Nebraska to inspect cooperative cereal experiments, particularly with wheat, to study wheat varieties and hybrids in breeding nurseries, and to observe wheat conditions in general.

Noel F. Thompson, associate pathologist, who, for the past few years, has been in charge of education and publicity in connection with the barberry-eradication campaign, with headquarters at Minneapolis, Minn., resigned his position on May 7. He is now connected with the Wisconsin State Department of Agriculture.

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#### VISITORS

Señor Don Manuel Zavala, First Secretary of the Nicaraguan Legation, was an Office caller on May 17. He is interested in obtaining a large quantity of seed rice.

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MANUSCRIPTS AND PUBLICATIONS

37 A manuscript entitled "A Trigenetic Hybrid of Aegilops, Triticum, and Secale," by C. E. Leighty, and W. J. Sando, was approved May 20 for publication in the Journal of Heredity.

38 A manuscript entitled "Dehulling Barley Seed with Sulfuric Acid to Induce Infection with Covered Smut, Ustilago hordei," by Fred N. Briggs, was submitted May 20 to the Journal of Agricultural Research.

Galley proof of article entitled "Strains of Kernel Smuts of Sorghum, Sphacelotheca sorghi, and S. cruenta," by W. H. Tisdale, L. E. Melchers, and H. J. Clemmer, was read May 13.

A Preliminary Report entitled "Harvesting Wheat with a Combined Harvester-Thresher in the Great Plains Region, 1926," by R. S. Kifer, W. R. Humphries and J. H. Martin, was received from the Government Printing Office on May 10, 26 pp., 1 fig. (Bureau of Agricultural Economics, Bureau of Public Roads and Bureau of Plant Industry in cooperation with Texas, Oklahoma, Nebraska, and Montana Colleges of Agriculture.)

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FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)  
(May 11)

The abundant spring rains are decidedly unfavorable to winter grains, especially wheat. Oats have improved greatly in the past month, but barley presents an uneven appearance, judging by the date of heading. It is very probable that there will be heavy lodging of the wheat plants.

Nakano Wase barley and Abruzzes rye began to head on April 19, apparently 10 days earlier than usual. The recent cloudy weather has delayed the maturity of plants, and wheat is but little ahead of its average date. The earlier varieties are now heading.

The first leaf rust in the wheat plants was found by L. D. Hutton and Dr. H. B. Humphrey on May 2. Loose smut of barley is more general than usual, but there is less covered smut, even in the untreated plots. Stripe-infected plants of Tennessee Winter barley (Selection 52) are common. This disease apparently is on the increase in winter barley at Arlington Experiment Farm. Seed of Tennessee Winter (Selection 52) treated with Semesan gave a good control of both smuts. Deep seeding of barley again increased the percentage of both covered and loose smuts.

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

# HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith) (May 11)

Search for the early occurrence of rust on barberries was started on April 13, at which time barberries were just leafing out in southern and central Iowa. The results of the observations from April 13 to May 7, inclusive, are presented in the following table:

Summary of observations for appearance of stem rust on common barberries in Missouri and Iowa, April 13 to May 8, 1927.

Date of Observation:	State and County	:Number of Proper-: :ties inspected	Infection	
			Pycnial	Aecial
April 13	:Marshall, Ia.	: 2	: -	: -
" 14	:Story, Ia.	: 2	: -	: -
" 27	:Nodaway, Mo.	: 5	: 5	: 5
" 27	:Gentry, Mo.	: 2	: 2	: 2
" 27	:Decatur, Ia.	: 1	: -	: -
" 28	:Appanoose, Ia.	: 5	: -	: -
" 28	:Wayne, Ia.	: 3	: 3	: -
May 2	:Dallas, Ia.	: 3	: -	: -
" 2	:Greene, Ia.	: 2	: -	: -
" 2	:Webster, Ia.	: 2	: -	: -
" 3	:Cerro Gordo, Ia.	: 1	: -	: -



Continued

Date of Observation:	State and County	Number of Proper- ties inspected	Infection	
			Pycnial	Aecial
May 3	:Humboldt, Ia.	: 2	: -	: -
" 3	:Wright, Ia.	: 2	: -	: -
" 3	:Butler, Ia.	: 3	: -	: -
" 4	:Blackhawk, Ia.	: 2	: 2	: 2
" 4	:Buchanan, Ia.	: 2	: 2	: -
" 5	:Clinton, Ia.	: 3	: 3	: -
" 7	:Greene, Ia.	: 2	: 1	: -
" 7	:Dallas, Ia.	: 1	: -	: -
" 7	:Boone, Ia.	: 1	: 1	: -
	:	:	:	:

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust; E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C.O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)  
(May 16)

The rainfall for the first 16 days of May amounted to 1.72 inches. Severe winds occurred on May 7, 8, and 9. On the 7th the average wind velocity for the 24-hour period was 18.8 miles per hour. On the following day the wind velocity reached an average of 27.1 miles per hour for the 24-hour period. On May 9 the average hourly velocity was 19.6 miles. This is one of the longest and most severe wind periods over a 72-hour period ever recorded for the month of May. Tornadoes and "twisters" occurred at several places in the State.

The continuous whipping of the wind had an injurious effect on growing wheat and tender vegetation. Nebraska No. 28 wheat, which was heading on May 7, was damaged to the extent of 75 per cent, the damage being due to the fact that the tillers were broken just below the head. The leaves were badly riddled on many plants. The wind also had a drying effect which became particularly noticeable a week later. Wheat on fallow ground where the supply of moisture was greater was damaged to a less extent than wheat on cropped land. A good rain of 0.82 inch last night will prove of much benefit to the injured wheat.

The varietal corn was planted on May 12 under very favorable conditions. Sorghums in the varietal plats and nursery will be planted before the end of this week, weather permitting. About 75 varieties and selections of sorghum will be tested in the varietal test, of which 50 will be planted on three different dates. The nursery on the Cereal Project will carry approximately 300 lines, most of which will be in duplicate head-row plantings.

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May, for G. F. Sprague) (May 16)

Cool weather for a large part of the past two weeks has delayed the development of all small grains and particularly the spring grains. However, some of the earlier winter wheats are in the boot stage and will soon be heading. Most of the spring grains are only three or four inches high. Weeds also are growing very slowly this spring.

All of the plats and nursery rows have been trimmed and staked. Most of the nursery rows have been weeded for the first time. The seed corn has been prepared and it is hoped to begin planting tomorrow morning.

The precipitation recorded for the first 15 days of May was 1.11 inches. The normal precipitation for the month of May is 3.06 inches. Temperatures averaged below normal. The minimum temperatures recorded were 32 degrees, 34 degrees, and 35 degrees F. on May 8, 9, and 10, respectively, while the maximum temperatures were 63 degrees, 59 degrees, and 58 degrees F. on May 1, 11, and 12, respectively. There were eight cloudy days in the first half of May.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (May 9)



Because of the lateness of the season no regular survey for barberries has been started so far this year. Buds on the barberry twigs are just beginning to open. Therefore, aecial infection of stem rust probably will not be found for another two weeks. Observations will be made on the first appearance of infection on barberries in different sections of the State.

Educational work through schools and colleges has been the major activity of the campaign in March and April. Edward M. Yocum, special agent, has visited all of the colleges and normal schools, and most of the larger high schools. Illustrated talks were given in many of the schools with the aid of a delineoscope. Mr. Yocum reports that the educational institutions in general are making splendid use of the material. In most cases additional material was requested. In connection with this activity, contacts were made with many of the business men, especially newspaper men. Invitations were received to speak before several Kiwanis and Lions clubs.

An invitation also was received to speak at the first State convention of the Young Citizens' League, held at Pierre on April 25 and 26. It was hoped that Dr. E. C. Stakman could accept this invitation, but a change in the date of the convention made this impossible. The State Leader was present and took Dr. Stakman's place on the program. This organization of young citizens has selected barberry eradication as a major State-wide project for next year. Definite plans for carrying on this special project will be formulated by C. G. St. John, State Superintendent of Public Instruction, the county superintendents, and the State Leader. The Young Citizens' League is an organization of grade-school students. Their motto, "Help Uncle Sam, One Another, Our School, and Community," expresses their purpose. It is believed that the organization can be of splendid aid to the campaign by stimulating interest in the project.

Plans for the spring and summer activities are under way. Weekly meetings are held for the purpose of training prospective field agents. It is planned to start the entire crew by June 15. Letters are being filled for all of the rural route boxes in the area to be surveyed. A letter, a bulletin, and a double postal card, were sent to about 8,000 boys and girls club members. The club camps will be visited again this year by a speaker who will instruct the boys and girls in barberry eradication.

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (May 17)



A rain during the period from May 6 to 9 ended in a blizzard on the 9th. The total precipitation for this period was nearly three inches, including the water from about a foot of snow. The snow has entirely disappeared now, and the soil is well soaked with moisture.

The total precipitation for the first half of May was 3.17 inches. The maximum temperature was 32 degrees yesterday and the minimum, 24 degrees on the 10th.

Field operations were suspended for about 10 days because of the storm and subsequent wet condition of the soil.

The seeding of cereal crops is completed with the exception of varieties of flax, corn, and proso, and the date-of-seeding experiment plats.

Varieties in plats and nursery have emerged or are emerging. They are in excellent condition, except for some bruised leaves, the result of the sleet and wind during the storm.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (May 17)

The germination of seed has been very slow during the first half of May. Flax sown April 27 and 30 in the flax and wheat mixture and date, rate, and tillage experiments is just beginning to emerge. Wheat in the flax and wheat experiment emerged about May 14.

The 17-foot row flax nursery was sown May 12. High winds prevented further seeding on May 13 and 14. Flax was sown on May 16 in the replicated varietal plats and drilled rows in the 5-foot row nursery. The single varietal plats were sown today, May 17. The spaced rows will be sown as soon as the weather permits.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (May 17)

All nursery and plat material has emerged with good stands. Germination of the seed, even with an abundant supply of moisture, has been slow because of cool temperatures. High winds prevailed for several days resulting in some soil blowing and injury to young cereal grain plants.

Seeding of cereal crops in this locality is nearly completed, and farmers are now starting to plant corn.

The weather for the first part of May was characterized by a heavy rainfall, high winds, and cool temperatures. The total precipitation for the period was 4.55 inches, of which 4.07 inches fell on May 6 to 9. The total amount is 2.32 inches above the normal for the month of May.

The maximum temperature for the first half of May was 70 degrees on May 12; minimum temperature, 28 degrees on May 10.

Official visitors at the Station since May 1 were R. R. Graves, in charge of Dairy Cattle Breeding Investigations, of the Bureau of Dairy Industry, Washington, D. C., and Prof. J. H. Shepperd, Chairman, Department of Animal Husbandry of the North Dakota Agricultural College.

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

#### WESTERN BASIN AND COAST AREAS (North to West and South)

#### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

#### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

#### OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

(May 12)

Warmer weather has improved crop conditions in Sherman County, but it will not be long before rain will be needed. There has been none of consequence since the middle of March. From what I have been able to learn, there was serious frost damage to the early-sown Federation wheat around Pendleton and Walla Walla. The damaged wheat was well advanced, about two feet high. It is reported that the later-sown Federation wheat was not seriously damaged. There also was little damage to any of the winter wheats. A temperature of 21 degrees did little damage to fall-sown Federation wheat in this county. The tips of the leaves were frozen, but I am sure there was not enough injury to affect the yield. I shall be in Umatilla County next week and after inspecting fields there will send you a report on the frost damage.

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 12

May 31, 1927  
Personnel (May 21-31) and Project Issue

### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, left Washington on Thursday evening, May 26, for Blacksburg, Va., to deliver the annual Phi Kappa Phi address at the Virginia Polytechnic Institute. The subject of the address was "The Scientist and Society." Dr. Ball also consulted with Director Drinkard and the representatives of the agronomy, agricultural economics, and agricultural engineering departments and with L. A. Reynoldson, of the Division of Farm Management, B. A. E., concerning proposed cooperative investigation of the combined harvester-thresher. The Station owns a 9-ft. Case combine, which will be used on a farm operated commercially by the College. Studies on shattering and lodging of different varieties of small grains will be made in the border rows of the nursery and field studies will be made in commercial fields to be cut. The cooperation includes a study of soy-bean harvesting in Caroline County in September and October.

Dr. C. R. Ball, senior agronomist in charge, will leave Washington about June 5 to travel in Ohio, Michigan, Indiana, Illinois, Iowa, Wisconsin, and South Dakota to confer with State officials and State leaders concerning barley eradication problems and cooperative experiments on breeding for rust resistance. At certain stations conferences will be held with reference to proposed cooperative investigations of combined harvester-threshers. Dr. Ball also may go to St. Paul and Minneapolis and to Ithaca, N. Y., if time permits. He will be back in Washington about June 16.

Dr. H. V. Harlan, senior agronomist in charge of barley investigations, left Washington May 31 for Chicago, Ill., to consult with barley specialists. From Chicago he will proceed to Aberdeen, Idaho, to inspect and take notes on cooperative barley experiments at the Aberdeen Substation. He will return to Washington about the middle of August.



Dr. H. V. Harlan, senior agronomist in charge of barley investigations, returned on May 28 from England, where he went with H. J. Bosley, of the Bureau of Agricultural Economics, to study the operation of the Federal grain grades as they are concerned with the marketing of grain in Europe. Official meetings were held with the Corn Exchange in London and the Corn Exchange in Liverpool. Private conferences were held with grain dealers and maltsters.

Dr. H. B. Humphrey, senior pathologist in charge of cereal-rust investigations, left Washington on May 27 for La Fayette, Ind., where he will confer with experiment station officials and State leaders in the barberry-eradication campaign. He also will travel in Illinois, Iowa, Nebraska, Kansas, Colorado, Wyoming, Montana, Washington, Idaho, North and South Dakota, Minnesota, Wisconsin, Michigan, and Ohio, inspecting cereal-rust nurseries at certain places and conferring with agricultural experiment station officials regarding cooperative stem and stripe-rust investigations.

Miss Mary L. Martini, assistant botanist in barley investigations, who has been at Sacaton, Ariz., since March 1 making studies on barleys in the cooperative barley nursery at the United States Field Station, left on May 28 for Aberdeen, Idaho, stopping en route at Logan, Utah. Miss Martini expected to reach Aberdeen June 1 or 2 and will remain until August 1, taking notes on and studying the barleys in the cooperative breeding nursery.

B. Y. Morrison, associate horticulturist, Office of Horticulture, who has charge of the classification of barberries at the United States Plant Introduction Garden at Bell (Glenn Dale, P. O.), Maryland, in cooperation with this Office, spent a few days in the latter part of May at the Arnold Arboretum, Jamaica Plains, Mass., collecting and pressing herbarium specimens of Berberis and studying live material of Berberis while in flower.

Dr. E. C. Stakman, agent in the cereal-disease investigations conducted in cooperation with the Minnesota Agricultural Experiment Station, was authorized on May 26 to travel to Winnipeg, Canada, to confer with officials of the Dominion Rust Research Laboratory. He will return to St. Paul about the middle of June.

L. R. Waldron, collaborator in the cooperative cereal investigations at Fargo, N. Dak. wrote on May 19 that although spring seeding had been much delayed on account of wet weather, the continued low temperatures had tended to compensate in some measure. The wheat nursery was sown in April, but wheat seeding was not finally finished until May 18. Unfortunately, wire worms had riddled some of the hybrid seedlings.

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## VISITORS

Dean E. J. Iddings, of the College of Agriculture, of the University of Idaho, was an Office visitor on May 24. Dean Iddings is on a six-months leave of absence and is making a tour around the world to study agriculture, particularly animal husbandry.

F. D. Ruppert, agricultural statistician with the Case-Pomeroy Company, of New York City, called at the Office on May 31.

Harry R. Warren, President of the Warren Seed Cleaning Co., Inc., 526 West 18th Street, Chicago, and John L. Kellogg, also of Chicago, visited the Office on May 31. They discussed with project leaders the possibilities of their new machine, invented by Mr. Warren, for cleaning and grading seed of corn, wheat, oats, etc. Mr. Kellogg and his father, W. K. Kellogg, of Battle Creek, Mich., have financed Mr. Warren in the building of the \$275,000 apparatus.

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MANUSCRIPTS AND PUBLICATIONS

39 A manuscript entitled "A Second Recessive Factor for Brown Pericarp in Maize," by Marion T. Meyers, was approved May 25 for publication in the Ohio Journal of Science.

40 A manuscript entitled "The Registered Varieties of American Wheat," by J. Allen Clark, was approved May 27 for publication in the Journal of the American Society of Agronomy.

41 A manuscript entitled "Rate and Date of Seeding and Seed-Bed Preparation for Winter Wheat at Arlington Experiment Farm," by C. E. Leighty and J. W. Taylor, was submitted on May 31 for publication as a Technical Bulletin of the Department.

Page proof of Department Bulletin 1489, Corn Breeding, by F. D. Richey, was read May 28.

Minnesota State Department of Agriculture Bul. 55, entitled "Barberry Eradication Pays," by E. C. Stakman, L. W. Melander and Donald G. Fletcher, was received May 28.

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N O T I C E

The Western Section of the American Society of Agronomy will hold its annual meeting at the Sherman County Branch Station, Moro, Oregon, June 27, 28 and 29.

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SIR JOHN RUSSELL LECTURES: ALL INVITED.

Sir John Russell, Director of the Rothamsted Experiment Station and one of the best known British agricultural scientists, will discuss the soil experiments on the Rothamsted Experiment Farm at the New National Museum Auditorium, Friday, June 10, at 3:30 P. M. This lecture has been arranged under the auspices of the Department graduate school and all Department employees are invited. It is hoped that the Department will be well represented on this occasion so as to give a fitting welcome to this eminent British scientist.

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PROJECT REPORTS

## WESTERN WHEAT INVESTIGATIONS

(J. Allen Clark, Agronomist in Charge, and K. S. Quisenberry, Assoc. Agronomist)

Uniform Winter Hardiness Nursery 1926-27. (Preliminary Report)

The uniform winter hardiness nursery was sown in the fall of 1926 at 26 experiment stations in the northern United States and in Canada. Thirty varieties and strains were included in the nursery. Several strains included in the 1925-26 nursery were discontinued because they showed no promise as to hardiness. Several new strains were included for the first time.

The following table presents the data from all stations from which reports were received by May 31. No station reported total killing, while three stations, Manhattan and Hays, Kans., and Lincoln, Nebr., reported complete survival. At several stations where partial killing occurred, the killing was not severe, as indicated by the fact that Fulcaster had as high a survival as Minhardi. At other stations only the least hardy varieties showed any killing. The reports at hand indicate that the past winter was quite mild, or when severe weather did occur an abundant snow covering was present.

A total of 20 stations reported partial killing. The data from Ithaca, N. Y., and Pullman, Wash., are not included in the averages because killing effects differ from those at other stations. The most hardy varieties this year are Minhardi (C. I. 5149), Buffum No. 17 (C. I. 3330), Minturki x Beloglina-Buffum No. 17 (C. I. 8033), Kanred x Buffum No. 17 (C. I. 8030), Minturki (C. I. 6155), and Turkey x Minnessa (C. I. 8028).

In the report of the 1925-1926 nursery it was pointed out that hybrid strains with as much hardiness as Minhardi had apparently been produced. From the reports received this year from all stations except Fargo, N. Dak., these hybrid strains appeared very promising as to hardiness. At Fargo these strains were nearly killed out, however, while Minhardi survived 69 per cent. This is the only indication that the hybrid strains lack winter hardiness, approximating that of Minhardi.

Average survival in the spring of 1927 of 30 varieties or strains of winter wheat grown in triplicate rows to determine winter hardiness at 23 experiment stations in the northern United States and in Canada in the winter of 1926-27

		Survival (per cent)													
		Man:-Hays:Lin:-North:Ches:-Ames:St.:Brook:Red:-Far:-Man:-Dick:-Boze:-	C.I.:State or Hybrid hat-	coln:Platte:enne:	Paul:ings:field:go:dan:inson:man	tan:Kans:Nebr:Nebr.:Wyo.:Iowa:Minn:S.Dak:S.Dak:N.D.:N.D.:N.Dak:Mont	kans:								
		No.:	Number												
Hard Red Winter															
Kharkof		:1442: ---		: 100: 100: 100:	93:	50:	91:	96:	72:	T:	0:	T:	T:	83	
Montana No. 36		:5549:mont. 36		: 100: 100: 100:	100:	50:	93:	92:	72:	0:	0:	1:	T:	93	
Karmont		:6700: ----		: 100: 100: 100:	100:	50:	97:	95:	72:	2:	0:	T:	T:	93	
Turkey (Sel.)		:6152:Minn. 1483		: 100: 100: 100:	100:	53:	96:	100:	72:	2:	10:	1:	1:	95	
Nebraska No. 60		:6250:Nebr. No. 60		: 100: 100: 100:	93:	60:	93:	100:	72:	3:	2:	2:	1:	93	
Beloglina		:1543: ----		: 100: 100: 100:	100:	60:	94:	100:	83:	7:	T:	3:	2:	93	
Beloglina		:1667: ----		: 100: 100: 100:	98:	60:	95:	97:	85:	5:	0:	4:	2:	82	
Blackhull		:6251: ----		: 100: 100: 100:	63:	13:	91:	57:	37:	1:	0:	T:	T:	95	
Kanred		:5146:Kans. No. 2401		: 100: 100: 100:	93:	58:	93:	97:	58:	2:	0:	1:	T:	83	
Tennarq		:6936:Kans. No. 439		: 100: 100: 100:	85:	62:	92:	79:	37:	1:	0:	T:	T:	92	
Newturk		:6935:166B1-6		: 100: 100: 100:	98:	62:	95:	72:	63:	1:	3:	1:	1:	88	
Iobred		:6934:1949		: 100: 100: 100:	92:	47:	96:	86:	62:	T:	2:	0:	1:	93	
Ashkof		:6680:Wisc. 11-825		: 100: 100: 100:	76:	47:	96:	97:	67:	T:	2:	T:	T:	92	
Kharkof (Sel.)		:6938:M. C. 2212		: 100: 100: 100:	100:	50:	85:	98:	83:	8:	12:	2:	4:	83	
Minard		:6690:Minn. 2199		: 100: 100: 100:	92:	53:	95:	98:	85:	3:	21:	T:	1:	92	
Padui		:6153:Minn. 1491		: 100: 100: 100:	97:	62:	93:	100:	81:	7:	27:	T:	2:	88	
Minturki		:6155:Minn. 1507		: 100: 100: 100:	100:	58:	97:	100:	92:	15:	32:	1:	3:	90	
Turkey x Minessa		:8028:1950A-9-14-4		: 100: 100: 100:	97:	60:	94:	100:	93:	9:	12:	2:	3:	85	
Kanred x Buffum No. 17		:8030:19100B-1-33-4		: 100: 100: 100:	92:	72:	91:	100:	90:	31:	7:	T:	5:	82	
Kanred x Minhardi		:8031:19102G-3-87-11		: 100: 100: 100:	95:	43:	91:	100:	95:	13:	1:	6:	9:	87	
Minturki x Beloglina-Buffum No. 17		:8033:19115A-7-30-5		: 100: 100: 100:	93:	53:	97:	100:	93:	48:	2:	5:	6:	98	
Minhardi x Minturki		:8034:19124A-1-3-16		: 100: 100: 100:	93:	40:	94:	100:	95:	7:	0:	3:	3:	98	
Eureka x Minhardi		:8036:1966A-22-23-1		: 100: 100: 100:	98:	38:	94:	100:	95:	15:	0:	5:	5:	95	
Kanred x Minhardi		:8040:19102G-3-87-2		: 100: 100: 100:	83:	27:	96:	100:	95:	13:	1:	9:	4:	93	
Minhardi x Minturki		:8047:19124A-1-3-2		: 100: 100: 100:	83:	32:	92:	100:	93:	8:	1:	3:	2:	93	
Soft Red Winter															
Buffum No. 17		:3330: ----		: 100: 100: 100:	92:	33:	97:	100:	91:	25:	50:	3:	6:	95	
Minhardi		:5149:Minn. 1505		: 100: 100: 100:	97:	57:	97:	100:	96:	5:	69:	3:	7:	92	
Odessa		:6151:Minn. 1471		: 100: 100: 100:	92:	32:	96:	100:	82:	13:	20:	T:	3:	93	
Harvest Queen		:6199:Kans. 19		: 100: 100: 100:	66:	25:	96:	99:	42:	2:	2:	0:	0:	92	
Fulcaster		:6471:Kans. 317		: 100: 100: 100:	65:	28:	90:	64:	20:	0:	0:	0:	0:	93	

Continued

Class and Variety	No.	State or Hybrid No.	Survival (per cent)													
			Moc-:Havre:Pull-:Ith-:Ste-:Otta-:Clare-:Ed-:Sas-:Indian:Ave.of:	ca-:man:aca:Anne:wa:holm:mon-:ka-:Head:18Sta-:	:sin:Mont.:Wash.:N.Y.:de:Onta-:Alb-:ton:toon:Saskat-tions*:Rank	:Mont:	:Belle-rio:	:Al-:Sask:chewan:	:ber-:	:ta:	:	:	:	:	:	:
Herd Red Winter																
Kharkof	1442: ---		97:	94:	100:	83:	88:	98:	70:	33:	68:	83:	62.0:	24		
Montana No. 36	5549:Mont. 36		98:	97:	100:	86:	86:	100:	96:	48:	68:	94:	66.0:	19		
Karmont	6700: ---		98:	99:	100:	86:	85:	100:	88:	50:	68:	88:	65.8:	20		
Turkey (Sel.)	6152:Minn. 1488		100:	98:	100:	87:	83:	100:	94:	52:	80:	86:	68.2:	14		
Nebraska No. 60	6250:Neb. No. 60		96:	98:	100:	81:	82:	100:	39:	52:	77:	89:	67.1:	18		
Beloglina	1543: ---		100:	99:	98:	84:	86:	99:	91:	52:	82:	91:	69.0:	12		
Beloglina	1667: ---		98:	99:	97:	88:	89:	96:	91:	55:	77:	90:	67.9:	15		
Plackhull	6251: ---		35:	79:	100:	88:	86:	98:	38:	43:	52:	79:	48.2:	30		
Kanred	5146:Kans. No. 2401		94:	94:	97:	80:	82:	96:	76:	35:	78:	81:	62.6:	23		
Tenmarq	6936:Kans. No. 439		55:	94:	100:	84:	84:	94:	53:	50:	65:	71:	56.3:	28		
Newturk	6935:166B1-6		87:	99:	98:	83:	74:	96:	63:	42:	68:	87:	61.1:	26		
Ic-bred	6934:1949		97:	99:	98:	82:	79:	96:	79:	42:	62:	80:	61.8:	25		
Ashkof	6680:Wisc. 11,825		100:	100:	98:	84:	75:	99:	88:	47:	78:	88:	64.0:	22		
Kharkof (Sel.)	6938:M. C. 2212		99:	100:	97:	74:	60:	96:	88:	58:	70:	87:	65.7:	21		
Minard	6690:Minn. 2199		100:	99:	98:	82:	85:	99:	96:	48:	37:	88:	69.6:	10		
Padui	6153:Minn. 1491		100:	100:	97:	74:	80:	97:	84:	70:	80:	90:	69.9:	7		
Minturki	6155:Minn. 1507		100:	100:	95:	78:	81:	99:	87:	57:	87:	87:	71.4:	5		
Turkey x Minnessa	8028:1950A-9-14-4		100:	100:	95:	76:	76:	99:	89:	88:	77:	86:	70.6:	6		
Kanred x Buffum No. 17	8030:19100B-1-33-4		100:	100:	93:	77:	78:	98:	82:	93:	77:	94:	71.8:	4		
Kanred x Minhardi	8031:19102G-3-87-11		100:	100:	92:	75:	72:	96:	72:	85:	65:	83:	67.4:	17		
Minturki x Beloglina-Buffum	78033:19115A-7-30-5		100:	100:	100:	76:	74:	97:	72:	92:	77:	89:	72.0:	3		
Minhardi x Minturki	8034:19124A-1-3-16		100:	99:	97:	77:	76:	94:	76:	93:	80:	96:	69.3:	11		
Eureka x Minhardi	8036:1966A-22-23-1		100:	100:	100:	73:	70:	99:	84:	88:	78:	91:	69.7:	9		
Kanred x Minhardi	8040:19102G-3-87-2		100:	100:	93:	74:	71:	99:	82:	77:	80:	91:	67.8:	16		
Minhardi x Minturki	8047:19124A-1-3-2		100:	100:	100:	80:	76:	100:	79:	93:	82:	97:	68.6:	13		
Soft Red Winter																
Buffum No. 17	3330: ---		100:	100:	97:	75:	80:	97:	89:	95:	90:	87:	74.2:	2		
Minhardi	5149:Minn. 1505		100:	100:	95:	75:	83:	100:	95:	87:	83:	83:	75.2:	1		
Odessa	6151:Minn. 1471		99:	100:	95:	80:	83:	100:	83:	95:	82:	83:	69.8:	8		
Harvest Queen	6199:Kans. 19		78:	91:	100:	80:	88:	100:	69:	62:	72:	82:	59.2:	27		
Fulcaster	6471:Kans. 317		40:	77:	100:	79:	82:	95:	42:	58:	48:	85:	49.3:	29		

\*The following stations are excluded: Manhattan and Hays, Kans.; and Lincoln, Nebr., where no killing occurred, and



## NEMATODE INVESTIGATIONS 1926-1927

(R. W. Leukel, Associate Pathologist, In Charge of Nematode Investigations.)

During the summer and fall of 1926, the wheat nematode disease was found on one farm near Lisbon, Howard County, Maryland, and on seven farms southwest of Gaithersburg, Montgomery County, Maryland, as the result of special surveys conducted in cooperation with the Extension Service of the University of Maryland and contacts with commercial agencies. The infestation was comparatively light except in one case in Montgomery County where it was rather heavy. This farm was visited after threshing had been done and it was found that the infestation had occurred on 48 acres, hence the total loss was rather heavy, probably approximating upwards of 250 bushels of wheat. In all cases where the disease was found the farmers greatly appreciated having the matter called to their attention and agreed to sell the infested wheat for milling purposes and to buy clean wheat for seed.

In the spring of 1927, a case of nematode infestation was found southeast of Gaithersburg, on the farm of the Adamson Bros., about 6-1/2 miles east of Rockville. The farm was visited on April 29 by Dr. A. G. Johnson and R. W. Leukel, of the Office of Cereal Crops and Diseases, and F. W. Oldenburg and Dr. R. A. Jehle, of the Extension Service, University of Maryland, together with O. W. Anderson, county agent of Montgomery County. Two fields of wheat, totaling 38 acres, were found heavily infested with the nematode. Approximately 40 per cent of the wheat plants were found to be infected. On examination of some of the unused wheat seed it was found that it contained about three per cent (by count) of nematode galls.

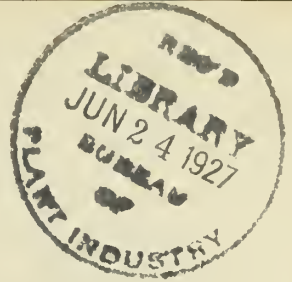
The loss that will be sustained this year on the Adamson Bros.' farm is estimated at from eight to ten bushels per acre, or a total of nearly 400 bushels. Unfortunately, this infestation was not found in the survey conducted last fall. If it had been, this heavy loss could have been avoided. The Adamson Bros. were advised regarding the nature of the disease and the methods for its control.

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917



C E R E A L   C O U R I E R

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Bureau of Plant Industry, U. S. Department of Agriculture  
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Vol. 19

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June 10, 1927

Personnel (June 1-10) and Field Station (May 16-31) Issue

P E R S O N N E L   I T E M S

F. A. Coffman, associate agronomist in oat investigations, will leave Washington about June 20 for an extended trip in western States in the interests of oat investigations. He will inspect experiments in progress, take notes in cooperative oat nurseries, and gather plant material at various places for later study in Washington, D. C. He also will consult officials of State agricultural experiment stations and Federal field stations in Missouri, Kansas, Colorado, Nebraska, and Iowa. From July 15 to August 20 he will be at Aberdeen, Idaho, making studies in the cooperative oat-breeding nursery. On the return trip to Washington a stop will be made at Ithaca, N. Y.

Loren L. Davis was appointed June 1 as agent in the cooperative cereal investigations conducted at Manhattan, Kans., under the direction of John H. Parker.

A. C. Dillman, associate agronomist in charge of flax investigations, will leave Washington June 13 for St. Paul, Minn., where he will study the classification of flax varieties and confer with officials of the Minnesota Agricultural Experiment Station. He will remain at St. Paul until after July 1. Mr. Dillman also will visit points in North Dakota, Montana, and South Dakota in the interest of flax investigations.

Dr. C. W. Hungerford, formerly agent in the cooperative stripe rust investigations conducted at Moscow, Idaho, was made Collaborator without compensation, effective June 1. The change has been effected because Dr. Hungerford has been appointed Acting Dean of the College of Agriculture of the University of Idaho and Acting Director of the Idaho Agricultural Experiment Station, effective June 1, during the temporary absence of Dr. E. J. Iddings who is on leave.

Dr. A. G. Johnson, senior pathologist in charge of cereal-disease investigations, on June 7 visited the corn disease experiments conducted by E. I. duPont de Nemours & Company, Inc., in the vicinity of Wilmington, Del. Dr. Johnson was accompanied by Dr. W. H. Tisdale and J. Hunter Gooding, Jr., of E. I. duPont de Nemours & Company, Inc.

Dr. C. E. Leighty, senior agronomist in charge of eastern wheat investigations, wrote as follows from Sacaton, Ariz., on May 25: "I found the wheat nursery here in fine condition. It was sown on alfalfa land and had made good growth but with no lodging. I have made a good start in harvesting it. There is practically no rust this year, - perhaps a dozen culms with a little stem rust in the whole nursery. A few of the introductions have a trace of smut, loose and covered, but in general they are "distressingly healthy," as Dr. Johnson would say. Most of the seedings are ripe or nearly so. The Swedish wheats and certain ones from Manchuria, Siberia, China, and Ukarinia are very late.

"Mr. Pope has several days' work yet in cutting and cleaning the barley. Miss Martini has nearly finished.

"A very good wheat crop is being harvested in the Salt River Valley. Rust is not present as it was last year. As compared with last year, there is a 50 per cent increase in yield in prospect. About 35,000 acres have been grown there this year. Wheat is quoted at \$2.00 a hundred at Phoenix. It is mostly Baart and Sonora."

Prof. W. W. Mackie, collaborator in the cooperative investigations of stem rust of wheat, leaf rust of barley, and the smuts of wheat and barley, at the California Agricultural Experiment Station, Berkeley, wrote as follows on May 23:

"I have just returned from a trip to the Imperial Valley, having visited all the grain counties throughout the San Joaquin Valley and up the Coast. From the farmers' standpoint it is gratifying that stem rust is not a factor this year. Some damage has been done in areas like the Imperial Valley and certain portions of the Sacramento Valley, but on the whole, this is not a rust year. Leaf rust occurred early and in some places, and appears to be rather extensive, but on the whole no real damage has been done. Stripe rust was found universally but in small quantity. Crown rust was found everywhere on oats very abundantly, but since this rust is considerably earlier than stem rust it was out of the way before the worst stem-rust-of-oat period began. Stem rust of oats usually comes at a much later date than stem rust of wheat or barley. There will be no serious damage from stem rust of oats. Halo blight was found on oats everywhere but not in as large a quantity as usual.

"In barley, the worst disease this year seems to have been spot blotch, which materially injured some of the plants. A heavy attack of spot blotch seems to be linked with lodging. Barley scald caused considerable damage in the Sacramento Valley on early sowings of barley. This was especially true at Davis on the University Farm, where our early barleys showed scald blotches larger than ever seen before. This also was associated with lodging. Certain barleys apparently are more predisposed to stripe disease than others. The barleys most affected are the new variety, Atlas, which everywhere is badly attacked, Coast, and 4000, related varieties. Loose smut was found as usual in the barley fields along the Coast, but was almost entirely absent in the interior areas. Hidden smut of barley appears to be very rare this year. This undoubtedly will permit placing on the market a very bright quality of barley. Mildew on barley again gave evidence of its ability to injure severely late-sown barley. This is true not only of the Coastal region but of such areas as Davis and the Imperial Valley.

"Again the Sacramento variety of barley showed its entire resistance to mildew. Sacramento and California Mariout barleys again showed entire immunity to both covered and loose smut. Foot rot (*Ophiobolus graminis*) again is prevalent over most of the State but apparently is causing less damage than for the past few years. On the University Farm at Davis, it has been noted that both early and late sown varieties of barley and wheat are rather badly attacked. There appears to be considerable varietal resistance to foot rot in both wheats and barleys. For instance, White Australian shows but little attack of foot rot, while Hard Federation shows a great deal. In the barleys, Sacramento practically is free from this attack, while Atlas and Vaughn are very badly attacked."

James F. Martin was appointed agent, effective June 10, to fill the position made vacant at Moro, Oreg., by the transfer of Burton B. Bayles to the cooperative cereal experiments at the Judith Basin Substation, Moccasin, Mont. Mr. Martin will conduct nursery and breeding experiments with cereals, which will include the testing of varieties and the development of improved varieties by pure-line selection and by hybridization.

M. A. McCall, agronomist in charge of cereal agronomy investigations, who has been on leave without pay since October 1, 1926, while engaged in full-time graduate study at the University of Wisconsin, will return to his former duties in this Office on June 11. He will confer with State and Federal officials at Urbana and Bloomington, Ill., La Fayette, Ind., and Columbus, Ohio, concerning cooperative cereal experiments and barberry eradication, and will reach Washington about June 16.

Dr. E. R. Ranker, associate physiologist in corn-smut investigations, will leave Washington June 16 to spend some time in field studies of corn smut and the collection of smut material for laboratory study. Dr. Ranker will go first to Raleigh, N. C., then to Clemson College, S. C., Athens, Ga., Piedmont, Ala., New Albany, Miss., Memphis, Tenn., Little Rock, Ark., Ft. Worth, Tex., Mesilla Park, N. Mex., Tucson, Ariz., and Los Angeles and Riverside, Calif.



John R. Woodward was appointed field assistant, effective June 6, to assist with investigations and experiments in the production and improvement of cereals conducted at the Arlington Experiment Farm, Rosslyn, Va.

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#### VISITORS

Dr. W. H. Tisdale, of the E. I. duPont de Nemours & Company, Inc., of Wilmington, Del., was an Office visitor June 4.

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MANUSCRIPTS AND PUBLICATIONS

The note entitled "Loose Kernel Smut on Feterita," by J. H. Martin and G. T. Ratliffe, appears in Phytopathology 17 (5): 338-339. May, 1927.

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### H. H. McKinney's Trip to Africa

H. H. McKinney, pathologist in charge of cereal virus disease investigations, who returned from Africa on May 10, gathered an interesting collection of plants and plant material along the west coast of Africa and in the Canary Islands.

Mr. McKinney joined the Allison V. Armour Expedition at Gibraltar in December, 1926. From there the expedition went to the Canary Islands and to most of the colonies in West Africa north of the Island of Fernando Po.

Throughout the trip, Mr. McKinney searched for virus diseases of plants, especially mosaics. In the Canary Islands, mosaic was very prevalent on several wild plants, chief among these being Nicotiana glauca and Psoralea bitumosa. Mosaic also was found on wild garlic and on Irish potatoes. Nicotiana glauca was of especial interest, as it developed all degrees of mosaic from the typical mild green type to the extreme yellow type.

In all of the Colonies visited in West Africa a mosaic was found on the cassava (manioc or Manihot) one of the chief food plants of the Tropics, and the source of tapioca. What appeared to be mosaic, occurred everywhere on the cayenne pepper plant. In most cases, these plants were very large and woody, as they take on a more or less perennial habit in the Tropics.

The disease also was found on three species of wild cucurbits and on a species of hibiscus. In some cases, the mosaic was of the extreme yellow type.

Mosaic was not found on any of the grasses. However, owing to the fact that the Expedition visited this region in the dry season, very few grass species were found in a growing condition, except in the rainy regions in the Cameroons and in Fernando Po. Sugar cane was found growing everywhere in the native gardens, but no mosaic was found on this crop.

The streak disease of corn is very serious in parts of the Gold Coast Colony and in several parts of South Africa and Kenya Colony. The rosette disease of peanuts is of very great economic importance in the Gambia and in the Sierra Leone. Neither of these virus diseases was observed because the crops had been harvested.

On his return to the United States, Mr. McKinney spent some time in England with Mr. J. E. Barnard and Dr. W. E. Gye, who are working on the cancer problem. The chief point of interest was the improved dark-field and ultra-violet microscope which has been developed by Mr. Barnard. This microscope seems to offer possibilities for advancing our knowledge of the viruses.

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FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)  
(June 1)

We have just completed harvesting at Athens and have some fair grain yields, although the varieties of wheat which were seeded a little late are not so good as usual. Leaf rust was very bad on wheat early in the season, but because of dry weather in most of April and May the damage was not so severe as was at first expected.

VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)  
(June 8)

The weather continues unusually cool. All fall-sown grain crops are very slow in maturing. It is expected that barley will be harvested next week, which will make the crop a few days later than usual.

Leaf rust of wheat is very slow in developing, and little loss in grain yield from this disease is expected. Leaf rust is much more severe on the north end of the farm than on the south end, where the bulk of the crop is being grown. An occasional bunted wheat plant has been found in some wheat plats, and a fair infection was obtained in the rows grown from smutted seed.

The following members of the Extension staff of the Colorado Agricultural College visited the Farm on June 3, accompanied by C. P. Close, of the Office of Horticulture, of the Bureau of Plant Industry:

Waldo E. Kidder, Extension Agronomist,  
D. C. Bascom, County Agent, Larimer County,  
H. H. Simpson, County Agent, Weld County,  
E. D. Smith, District Extension Agent for southern Colorado.

Much interest was manifested in the cereal experiments, which were explained by members of this Office.

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)



## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love) (May 26)

The weather of the past few weeks has been very favorable to spring-sown grain. We have had more than the usual amount of precipitation. While this has not been so favorable for corn planting and some of the later work, nevertheless it is resulting in a great growth, not only for oats and barley, but also for winter wheat. We trust that the growth does not become so rank that the grain will lodge later in the season. Past experience indicates that this may be the result of a too rapid growth early in the spring.

All of the nursery, both barley and oats, was put out in splendid condition this year and we were able to put all the material in at nearly the same time. We should have a very fine lot of data for comparison when the harvest is completed.

Many new hybrid combinations, both between species and between different varieties of wheat and oats, were made in the greenhouse this year. The greenhouse material made a very good growth. Mr. Craig was able to make a very large number of crosses. In the garden this spring another large seeding of oat hybrids also was made, so that this material should furnish some very interesting genetic data when the plants are ripe.

Owing to rains we have been somewhat delayed in getting all of the seedings made in the different counties this year, but we shall have several comparative tests where we can make comparisons between our new strains and some of the usual commercial varieties grown by farmers.

Dr. Dorsey had a rather large seeding in the greenhouse this year and was able to put up considerable material for cytological studies. In this connection he is studying the cytology of a number of unusual hybrid combinations.

Dr. Dorsey left Ithaca on May 20 to look after the harvesting of hybrids in the cooperative wheat breeding nursery at Davis, Calif., and to visit certain agricultural experiment stations, particularly where cereal investigations are under way. He is planning especially to visit the experiments in Kansas, at Pullman, Wash., and at St. Paul, Minn. Other stops along the way will be made wherever convenient.

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)  
(May 31)

On May 19, common barberry seedlings and sprouting bushes were found heavily infected with stem rust near Tonica, La Salle County. Rusted barberries also have been observed in Montgomery, Sangamon, Peoria, Piatt, and Lake counties. A rusted Mahonia aquifolium was found in St. Clair County on May 22. It is safe to conclude that all barberries in the northern half of Illinois probably are rusted now. In May, several barberry plantings in southern Illinois were examined for rust. On one trip, R. W. Bills went as far south as Cairo. So far no trace of rust has been found on barberries.

Good progress has been made in the original survey of St. Clair County. At the end of May about 50 per cent of the county had been covered. The State Department of Agriculture is cooperating and has a crew of men working in St. Clair County. So far most of the bushes have been found in cities and towns. Only a few rural plantings have been located.

Plans for June activities are well organized. The annual school of instruction of field agents will be held on June 9 and 10. The men coming on in June will begin work in St. Clair, Clinton, and Marion counties. One of the difficult problems will be the survey of East St. Louis, because many different classes of foreigners reside there.

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

#### OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer) (May 31)

Pycnia was first found on barberries this year at Columbus on April 11. Fully developed aecia were first observed at Columbus on April 27. Mature uredinia were discovered at Columbus on May 19 on Portage wheat growing within a foot of infected barberries. The wheat was in the boot at the time. Immediately after they were found specimens of aecial and uredinial material were sent to St. Paul, Minn., in order that the physiologic forms might be determined.

The survey of Jackson County was completed in May by the "original modified survey method." Ten barberry locations were recorded in cities and towns and four locations were found on farms. No escaped barberries were discovered in the County.

Five per cent of the area of Columbiana County was completed by the "original intensive survey method" in the latter part of May. No barberries have been found in this county so far this spring. Only one township in the county remains to be covered by original survey, and in all probability the survey will be finished there in early June.



It is planned to place several agents in the field on survey on various dates in June as they become available for service and as funds permit. One crew probably will begin survey in Geauga County and another will start operations in Lawrence County before the middle of June.

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

#### WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

#### MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, C. V. Kightlinger)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

#### GREAT PLAINS AREA (South to North)

#### OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)  
(June 1)

The weather in May was dry, warm, and windy. Sorghums have not yet been seeded and we are waiting for rain.

Wheat may make an average crop, although an average will seem small in comparison with last year's crop. Wheat is withstanding the drought better than expected.



Maximum temperature for May, 100 degrees F. on the 17th; minimum, 38 degrees on the 11th. Precipitation for May, 0.52 inch. This is the lowest record for May since the establishment of the Station.

Dr. Hurley Fellows, of Manhattan, Kans., last week examined the wheat plats for foot rot, but found none.

#### KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston) (May 18)

While on a trip to Denton, Tex., Stillwater, Okla., and Harper, Kans., notes were taken on infection of leaf rust of wheat in the nurseries.

A severe epidemic of leaf rust prevails throughout northern Texas, Oklahoma, and southern Kansas. Many late-sown fields will be severely injured. The leaves are drying up rapidly because of a combination of abundant leaf rust and dry weather. Stem rust of oats also was present at Denton, Tex. Only a trace of stem rust on oats was observed at Stillwater, Okla. So far no stem rust has been found on either oats or wheat in Kansas.

Crown rust of oats is extremely heavy throughout northern Texas, Oklahoma, and southern Kansas, but none has yet been seen at Manhattan. Septoria is very prevalent on wheat in Texas, Oklahoma, and southern Kansas. The lower leaves are attacked at all of these stations, and at Denton considerable glume blotch was noted. Leaf rust also was prevalent on barley and rye at Denton, Stillwater, and Harper. A very severe infection of barley stripe and barley blotch was noted in experiment plats and increase fields of barley on the Denton Station.

Some fields of oats were being cut near Sanger, Tex., on May 11. Wheat was in full head in Texas, in half head in Oklahoma, and just beginning to head in southern Kansas.

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

#### COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague) (June 1)

Winter wheat was noticeably affected by lack of moisture in the latter half of May. Wheat fired badly on land presumably rich in nitrates. Half an inch of rain which fell last night will benefit wheat greatly but can not entirely overcome the damage that has been done. The spring grains were not noticeably affected by the lack of moisture.

The earlier winter wheats are in full head, while most of the later varieties are beginning to head. The spring grains are from six to eight inches high and are making vigorous growth. Corn has emerged to full stands in most instances and is making good growth. Where poor stands of corn resulted, the rows have been replanted with a hand planter. It is hoped to plant the sorghums tomorrow. All alley-ways and road-ways have been cultivated.

The precipitation recorded in May totaled 2.27 inches, as compared to 3.06 inches as the normal for the month. The maximum temperatures recorded were 96 degrees, 95 degrees, and 86 degrees F. on May 17, 21, and 16, respectively, while the minimum temperatures were 32 degrees, 34 degrees, and 35 degrees F. on May 8, 9, and 10, respectively.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger) (May 22)

Pycnial and aecial infections were first found on May 18 on a barberry bush in Brookings County near Volga. Other barberry locations in the eastern and southern part of the State failed to show any infection at this date. The aecia on this bush near Volga were very immature. The flecking was general, and it appeared as though a heavy infection would develop. This is the latest that infection has been found on barberries, with the exception of 1924, for the past eight years. The earliest date of aecial infection for this period was May 2, with an average date of May 9.

Second survey was started this week in Brookings County. About 25 per cent of this county remains to be covered. Only two men are employed on this survey at present. The entire crew will be started about June 15, when Lincoln, Clay and Union counties will be included in the survey. Letters to holders of rural route boxes have been filled and addressed. These will be sent out as the survey progresses. Contacts have been made with editors and other business men in the territory to be covered this year. Their cooperation has been promised.

The grain in the sulphur-dust plats at Brookings and Highmore has made good progress. Two dates of seeding were used in the plats at Brookings. The second seeding was made on May 14. This should give the stem rust ample time to develop before these experimental plats are harvested.

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (June 2)

The month of May was unusually cold and wet. There were but few clear, warm days without precipitation. The total precipitation for the month was 5.67 inches. In the past 35 years, there were but two years--1906 and 1909--when the precipitation for May was greater than that for this year.

The small-grain crops are in excellent condition but shorter than usual at this time of the year. Corn has not yet emerged except for early plantings in the garden.

The seeding of cereal crops is completed with the exception of proso, which is being sown today, and one more seeding of flax about the middle of the month.

The station was visited recently by Dr. P. F. Trowbridge, Director of the N. Dak. Agricultural Experiment Station, Dr. H. L. Walster, Dean of Agriculture at the Agricultural College, and Supt. U. J. Downey of the Hettinger Substation.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (June 3)

All of the flax seeding is completed with the exception of the final seeding in the date-rate-and-tillage experiment. The fourth seeding in this experiment was delayed until May 23 on account of rain on May 21. The classification nursery and miscellaneous material were sown on May 27.



Stands of flax sown on April 27 in the mixture experiment and on April 30 in the date-rate-and-tillage experiment are very poor, probably on account of the surface soil crust caused by rain amounting to over 4-1/2 inches in the two weeks following seeding. Flax sown earlier (April 20), which had emerged before the heavy rainfall, and flax sown after the rain (April 11 and later dates), emerged with fair stands.

The acreage of flax already sown and contemplated in this locality is apparently much greater than for some years. Several requests for seed have been filled from stocks available at the Station, chiefly with N. D. Resistant 114, the only variety of which seed was available in sufficient quantity.

Small grains are making excellent growth, but corn is very slow in emerging.

The rainfall in May exceeded all previous records for the month in the past 53 years. The precipitation in the last half of May was 2.10 inches, which with the 4.55 inches in the first half of the month, makes a total of 6.65 inches for May. The highest total May rainfall previously recorded in this locality was 5.74 inches at Bismarck in 1876.

The maximum temperature for the last half of May was 83 degrees F. on May 16; minimum, 35 degrees F. on May 18. Cool, damp weather has prevailed during this period.

Guy F. Allen, Assistant Director of the Bureau of the Budget, Washington, D. C., visited the Station on June 1.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus)

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles) (May 17)

The plats of wheat, oats, and barley, which were seeded the last week in April, have emerged to good stands. Some nursery seeding still remains to be done. There have been very few days this spring when it has been possible to seed on account of rain and snow or wind.

Winter wheat generally over the Judith Basin is in good condition. Only a few fields are being reseeded because of blowing.

The spring has been very late, with much cold, windy weather. About 60 per cent of the spring wheat in the Judith Basin has been seeded to date.



The minimum temperature for April was 1 degree below on the 20th, and the maximum, 77 degrees on the 28th. The precipitation for April was 1.17 inches, which is 0.12 inch less than normal. The minimum temperature for the first half of May was 18 degrees on the 5th, and the maximum 66 degrees on the 15th. The precipitation for the first half of May was 0.7 inch, which came in the form of snow on the four days, May 5 to 8, inclusive.

(June 1)

The precipitation for May was 5.08 inches. The average for 19 years is 2.45 inches. The highest ever recorded in May, before this year, is 3.94 inches in 1920. It has rained or snowed on 21 days, which has given very little chance for field operations this month.

The maximum temperatures for the last two weeks of May were 73 and 72 degrees on the 16th and 17th. The minimum temperatures were 31 degrees on the 22d and 32 degrees on May 19, 23, 24, and 30.

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)  
[May 17]

Field work in barberry eradication in Montana will begin with a limited number of men on June 1. Second survey in Gallatin and Yellowstone counties will demand the greater part of the time prior to July 1. This will be a continuation of the second survey which was in progress last fall, when an effort was being made to ascertain the source of local rust epidemics that appeared in these counties earlier in the season. After July 1, original survey will begin in the extreme western part of the State. Missoula and Ravalli counties will be the center of the activities.

#### WESTERN BASIN AND COAST AREAS (North to West and South)

##### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe) (May 20)

The season continues cold and we are now a month later than last year at this time. Some oats were seeded yesterday.

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

##### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

##### OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(May 18)

Weather conditions in eastern Oregon during the latter half of April and the first half of May were not very favorable for cereals. There was very little precipitation, and in some sections there was severe frost damage. On April 20 there was a severe killing frost which damaged early fall-sown wheat, especially the spring types like Federation, Jenkin, and Redchaff. An examination last week of several fields in Umatilla County showed that in some instances the yield will be reduced about 50 per cent. Because it was further advanced Federation was injured more than other varieties. Some fields were almost in the boot stage at the time of the frost. The frost damage was not general, many fields of Federation showing little or no injury. In some locations, Hybrid 123 also was damaged. The minimum temperature at Pendleton was 18 degrees and at Hermiston 14 degrees.

On the Station the minimum temperature on the night of April 19 was 21 degrees, the lowest temperature on record in April. This frost did not injure any of the fall-sown varieties in the plat or nursery experiments. Spring grains which had emerged about ten days before were somewhat damaged, the spring barleys being most affected and the spring oats least.

Fall-sown Federation wheat is beginning to head, and in the nursery several wheat varieties have started heading. Winter barley is now about 50 per cent headed.

Unless it rains soon the winter grains all will have shorter straw than usual.

The total precipitation in April was 0.07 inch and so far in May, 0.55 inch. The total precipitation from March 1 to date was 1.63 inches. There were 15 days in April with minimum temperatures of 32 degrees or lower.

#### CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (May 17)

Rains the first week in April delayed seed-bed preparation in the rice area fully 10 days. Most of the rice is now sown, however, and a large percentage of it has been irrigated.

It is estimated that about 155,000 acres will be sown to rice in California this season. There is a decrease in the acreage sown to rice in Glenn and Colusa counties but an increase in acreage in Yolo, Sutter, and Merced counties. Merced County is in the San Joaquin Valley.

The market for paddy rice is much stronger now than it was last fall, when the crop began to move, and indications are that there will be no carry-over to affect the market next fall.

We began plowing at the Station on April 15; seeding was done on April 21; the first irrigation of the rice was finished on May 4. The nursery and varietal plats, which are drained after flooding, were irrigated the second time on May 12, and the rice is emerging now.

May 13, 14, and 15 were very warm. The maximum temperature on the 15th was 100 degrees F. So far this week the weather has been cool.

(June 1)

Rice sown in the nursery and varietal plats has emerged with good stands. The fertilizer experiments, depth-of-submergence experiments, and the varietal tests, grown by continuous submergence, are showing green now, for the rice has emerged through the water. The leaves still are floating on the water, however. In another week the seedlings on these plats should be erect.

There has been a good deal of cloudy weather in the month of May and some rain. The temperatures have been below normal for the month. The average maximum temperature for May was 79.7 degrees, the average minimum temperature, 49.6 degrees, and the average mean temperature, 64.7 degrees.

University Farm, Davis (Cereal Agronomy, V. H. Florell) (May 31)

The cereals in the experiments are progressing rapidly and soon will be fully matured. Varieties of barley in the nursery are fully ripe now, as are most of the varieties of oats and wheat. Several varieties in the plats still show some green but all will be ripe in a short time. In Dr. Love's hybrid wheats there are a number of families which began ripening some time ago.

The wheat crossing program was completed on May 29. There was considerable difficulty in making all the crosses on account of the late maturity of some of the winter-wheat varieties.

The earliest of the hybrid oats have been harvested. As some of these crosses were between wild species it was necessary to harvest early in order to avoid loss from shattering.

Some of the varieties and strains in the nursery are rather badly lodged, but in general those in the plats are in excellent condition. Of the new selections sent here from Washington last fall those of Fulghum, collected in Georgia and at other points in the South, are showing up to the best advantage. Among the different oat strains and varieties that are being grown in the cereal nursery, these are showing the greatest resistance to lodging. However, they probably will be more or less injured by blackbirds, who seem to be having a good time with all the oats, especially with those that are not lodged.

Last week on a trip through the Sacramento Valley to observe the condition of the cereal crops, very few fields of oats were noticed and these did not look very promising.



Annual Cereal Day was held at University Farm on May 18. About 125 persons were in attendance, most of whom were representative grain growers from the different grain-growing sections of the State. The visitors were shown the cereal experiments in plats and nurseries. Seed cleaning and grading machinery and various types of combines were exhibited by the Division of Agricultural Engineering.

The new promising varieties of cereals were of particular interest. Atlas, Sacramento, and Vaughn barleys, Escondido and Pusa No. 4 wheats, and Fulghum and Sunset oats attracted the most attention. Considerable interest also was shown in the method of breeding and developing new varieties of wheat resistant to bunt.

Another feature of the day's program was an address by James E. MacKinzie, Federal Grain Supervisor, of San Francisco, on Federal grades of grain. Mr. MacKinzie demonstrated the method of determining the percentage of dockage in samples of grain, as well as methods of sampling bulk carload lots of grain. Keen interest was shown by farmers in the application of the Federal grades, especially grades of barley. Some of them were somewhat doubtful as to the benefit to be derived from the use of Federal grades, nevertheless they displayed a great deal of interest.

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)  
(May 28)

Because of the comparatively cool spring, the cereals at University Farm are somewhat later this year than usual. My harvesting operations consequently are being delayed a few days.

Agronomy Day or Annual Cereal Day was held at Davis on May 18. Prof. Mackie alternated with Mr. Florell in showing the crowds through the fiftieth-acre plats. I conducted them through all of the nurseries except that portion seeded on the irrigation tract. Prof. Conrad demonstrated the cleaning and seed-treatment machinery, and Prof. Stirniman explained various adjustments on the combined harvesters.

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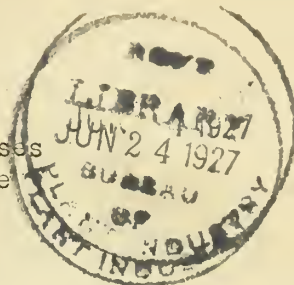




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CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 19

No. 14

June 20, 1927

Personnel (June 11-20) and Field Station (June 1-15) Issue

PERSONNEL ITEMS

Dr. Carleton R. Ball, agronomist in charge, returned to Washington on June 15 from the Middle West. At Purdue University and the University of Illinois, Dr. Ball conferred with the State Leaders of barberry eradication, W. E. Leer and G. C. Curran, respectively, on problems of second survey in both States and the completion of the original survey in southern Illinois. In Iowa the whole program of our cooperative investigations, including barberry eradication, was discussed. In Illinois and Indiana agreements for a study of the combined harvester-thresher were negotiated, covering investigations by the Divisions of Agricultural Economics, Agricultural Engineering, and Agronomy in the State experiment stations, and the Division of Farm Management and Costs, Bureau of Agricultural Economics; Division of Agricultural Engineering, Bureau of Public Roads; and the Office of Cereal Crops and Diseases, Bureau of Plant Industry, in the United States Department of Agriculture. The same problems were discussed informally in Iowa and Ohio.

Arthur Bartel was appointed on June 11 as temporary field assistant in the cooperative cereal experiments and investigations conducted at the Aberdeen Substation under the direction of G. A. Wiebe.

J. Allen Clark, agronomist in charge of western wheat investigations, wrote from Davis, Calif., on June 8 that most of the cereal experiments were in good condition but that there was about 50 per cent lodging in the nursery. There was a rain on the afternoon of the 7th of June, - unusual for California.

Dr. G. N. Hoffer, pathologist in charge of corn root rots and metallic-poison investigations in cooperation with the Purdue University Agricultural Experiment Station at La Fayette, Ind., came to Washington on June 11 to superintend the exhibit of methods of determining by chemical reagents the nitrogen and potash requirements of corn plants, which he is demonstrating to visitors at the First International Congress of Soil Science. He returned to La Fayette on June 15, leaving the exhibit in charge of Mr. F. L. Goll.

Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, returned to Washington on June 15 after harvesting and recording notes in the cooperative wheat breeding nursery at the United States Field Station, Sacaton, Ariz., and conferring with cooperators and experiment station officials in Tennessee and North Carolina.

R. W. Leukel, associate pathologist in charge of nematode investigations, spent June 17 in the vicinity of Rockville, Montgomery County, Maryland, in taking notes and field counts on wheat infected with the nematode disease.

Dr. E. B. Mains, agent in cooperative leaf-rust investigations at the Purdue University Agricultural Experiment Station, La Fayette, Ind., came to Washington on June 15 to make observations on leaf rust of wheat at the Arlington Experiment Farm. He left June 18 to return to La Fayette.

J. H. Martin, agronomist in charge of grain sorghum and broomcorn investigations, will go to Blacksburg, Va., the latter part of June to assist officials of the Virginia Agricultural Experiment Station in the cooperative investigation of methods of harvesting small grains with a combine in comparison with other methods of harvesting.

M. A. McCall, agronomist in charge of cereal agronomy investigations, returned to Washington on June 20.

M. N. Pope, associate agronomist in barley investigations, returned to Washington on June 20. He reports that the barley nursery at the United States Field Station, Sacaton, Ariz., was in very good condition, - one of the finest he had ever seen. Mr. Pope finished his work in it on June 11 and left for Kansas where he visited the nurseries at Hays, Colby, and Manhattan. The nurseries at Hays and Colby had been badly hit by the May drought. There was plenty of rain in June, however. Wheat yields in western Kansas had been cut very much because of lack of moisture. Oats looked very well. On the Station plats yields of possibly 75 bushels per acre are expected. At Manhattan the barley nursery was the best ever seen by Mr. Pope at that place. A rainfall of about three inches on the night of June 17 caused some lodging, but the nursery as a whole was very promising.

Jerome P. Seaton was appointed June 16 to assist, during the summer months, in the cereal experiments at the Arlington Experiment Farm, Rosslyn, Va.

Glenn S. Smith was appointed on June 13 as farm laborer to assist, during the summer months, in the cooperative cereal experiments at the Dickinson Substation, Dickinson, N. Dak.

T. R. Stanton, agronomist in charge of oat investigations, will leave Washington about June 26 for a two-months' trip in the Corn Belt and northwestern States in the interest of oat investigations. Mr. Stanton will inspect cooperative and other experiments with oats and will confer with officials at the various agricultural experiment stations. He will make stops in Ohio, Indiana, Illinois, Iowa, Nebraska, Minnesota, North and South Dakota, Montana, Idaho, and Kansas. At least two weeks will be spent at Ames, Iowa, and three weeks at Aberdeen, Idaho, where he will assist in recording experimental data and in harvesting the extensive cooperative oat-breeding nurseries in progress at these stations. On the return trip to Washington Mr. Stanton expects to stop in Chicago to visit the plant of Warren Seed Cleaning Company.



V. F. Tapke, associate pathologist in cereal smut investigations, will leave Washington the latter part of June to make field studies on smut of wheat and oats in Iowa, North Dakota, Montana, Utah, and Idaho.

John F. Thompson was appointed on June 20 as farm laborer to assist during the summer months in the cereal experiments and investigations conducted at Arlington Experiment Farm.

Dr. C. W. Warburton, Director of Extension Work, of the United States Department of Agriculture, recently attended the twenty-fifth anniversary of his graduation from the Iowa State College.

Miss Winifred Watson, clerk in the office of the State leader of barberry eradication in Colorado, resigned her position on June 8.

Mrs. Thelma T. Webb, assistant clerk in the cooperative cereal disease investigations at La Fayette, Ind., resigned her position on June 15.

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#### VISITORS

T. S. Buie and R. W. Hamilton, of Clemson College, S. C., were Office visitors on June 15. Mr. Buie had just returned from Iowa State College, Ames, Iowa, where he had been studying for his doctorate.

G. M. Garren, of the North Carolina Agricultural Experiment Station, called at the Office on June 15.

J. K. Groenewolt, research assistant at the State Institute for Plant Breeding, Wageningen, The Netherlands, was an Office caller on May 20. He was interested especially in the improvement and breeding of wheat, oats, barley, and flax. The experiments at the Arlington Experiment Farm were explained to him by some of the members of the Office.

G. W. Patteson, Jr., extension agronomist of the Virginia Polytechnic Institute, Blacksburg, Va., visited the Office on June 20. He was interested particularly in seed of improved strains of winter oats for testing under Virginia conditions. Arrangements were made to furnish Mr. Patteson with 10 bushels of seed of the Lee variety for testing on two different farms in that section of Virginia where Winter Turf has been the standard winter oat.

Dr. B. E. Quick, professor of biology at Westminster College, New Wilmington, Pa., was an Office visitor during the week of June 12 to 18.



Prof. Dott. Giacomo Peroni, ex Deputato al Parlamento, and member of the Cooperative Agricultural Society, was one of a party of 22 Italians who recently came to the United States to study our agriculture. On June 17 Prof. Dott. Peroni spent half a day in the Office in conference on rice production in this country.

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The following members of the Office were awarded degrees at various institutions of learning:

- O. S. Aamodt, degree of Ph. D., University of Minnesota, June 13, 1927.
  - A. C. Dillman, degree of M. S., University of Maryland, June 7.
  - J. R. Hooker, degree of LL. M., George Washington University, June 8.
  - R. W. Smith, degree of M. S., North Dakota Agricultural College, June 13.
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MANUSCRIPTS AND PUBLICATIONS

42 A manuscript entitled "Chromosome Numbers in Zea mays L.," by L. F. Randolph, was submitted June 11 for publication in the Memoir series of the New York (Cornell) Agricultural Experiment Station. This is based on results obtained in cooperative investigations on the cytology of maize.

43 A manuscript entitled "Bread or Barberries," by Edith M. Patch, was submitted June 20 for publication as a Farmers' Bulletin.

Galley proof of article entitled "Variants in Ustilago nuda and Certain Host Relationships," by W. H. Tisdale and Marion A. Griffiths, was read June 6.

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P. B. A. Circular No. 76

June 14, 1927.

Medical certificate required for all reinstatements.

Under date of May 31, 1927, the Civil Service Commission advised the Department that on and after July 1, 1927, no certificate of reinstatement will be issued until there is filed with the Commission a medical certificate of examination of the applicant, indicating his fitness for reinstatement; said examination to be by a physician in the Government service, or, if that is impracticable, by a non-Government doctor of medicine in good standing.

The Commission's action in this case was taken upon the urgent representation of the Employee's Compensation Commission and of the Retirement Division of the Bureau of Pensions.

In order to expedite reinstatements and to avoid unnecessary delay and correspondence, bureau officers handling personnel matters should see to it that all recommendations for reinstatements made on and after July 1, 1927, are accompanied by medical certificates.

In the case of persons residing in Washington, D. C., the Chief Personnel Officer of the Department will make the necessary arrangements with the Public Health Service for the physical examination. He also will advise the bureaus, when requested, the location of physicians in the Government service outside of Washington, D. C.

W. W. STOCKBERGER  
Director.

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# FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

### LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (June 9)

The weather of the first 19 days of May was dry. This condition, following the dry weather of April, caused some uneasiness lest the supply of irrigation water in the streams and lakes might become contaminated with salt. All fear of salt water contamination was removed when 13.64 inches of rain fell during the period from May 20 to 23, inclusive, making a total precipitation of 14.37 inches for the month. This is the heaviest precipitation ever recorded at this Station for the month of May. The precipitation on May 22 amounted to 8.22 inches, which is the heaviest this Station has ever recorded for a period of 24 hours. The past highest record was for November 13, 1922, when 6.37 inches were noted.

This heavy precipitation placed more water in the local streams than they could handle, causing the inundation of much of the town of Crowley to a depth of three to four feet. Three-fourths of the Station land was under water for five days, resulting in the destruction of all cotton and corn and a reduction in stand of rice and soybeans that had been seeded only a few days before. Cotton and corn will be replanted as soon as the soil is dry enough.



The seeding of the rice plats was completed on May 19. In most plats the soil was in good moist condition at the time of seeding. The germination was satisfactory in those plats that were seeded long enough for the seedlings to emerge before the heavy rains. Much of this rice was weakened, however, by being covered for five days with deep water, but it is recovering rapidly.

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

#### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

#### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

#### IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

#### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, ----)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger) (June 16)

In the sorghum varietal experiment one seeding was made on June 10 in the date-of-seeding experiment; in the broomcorn experiment a seeding was made on June 10. The sorghum varieties are emerging today, June 15. As soon as the fields are dry enough seeding of the grain sorghum and broomcorn will be rushed.

Maximum temperature for the period from June 1 to 16, 98 degrees, June 11; minimum, 51 degrees on June 4; precipitation, 3.45 inches.

K. S. Quisenberry visited the Station on June 9 and was shown some typical wheat fields in the vicinity of Woodward.

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)  
(June 15)

All row crops on the cereal project have been cultivated once. The sorghums and corn have been thinned to a uniform stand. Taken as a whole, the stands are excellent.

The precipitation for the first 16 days of June amounted to 6.90 inches; at the present time it is still raining. In only one other June in the last 60 years has there been greater precipitation for the month. The first rains of June came too late, however, to benefit greatly the winter-wheat crop, but some improvement has been noted already; the harvest will be delayed about two weeks.

Oats and barley and all sorghum and corn have been greatly benefited. In northwestern Kansas, where the drought was very severe last year, there is a very large acreage of oats, barley, and corn. In this section, there is promise of a heavy yield of oats and barley.

J. Allen Clark, M. N. Pope, K. S. Quisenberry, and C. O. Johnston, of the Office of Cereal Crops and Diseases, and Profs. J. H. Parker, S. C. Salmon, H. H. Laude, and J. W. McColloch, of the Kansas State Agricultural College, were recent visitors at the Station. Prof. Hermann Dyckerhoff and Dr. Georg Blohm, of Halle University, stopped at the Station June 10 to confer with officials and to inspect the experiments.

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May, for G. F. Sprague) (June 16)

The first 15 days of June were cloudy and rainy most of the time. Temperatures averaged below normal. Precipitation was recorded on seven days, and it was cloudy on 12 days. The precipitation recorded exceeds the normal for the entire month.



The cool, rainy weather has delayed field operations, the growth of crops, and, incidentally, the growth of weeds. The planting of sorghum varieties; note-taking, and thinning corn were among the more important tasks performed since the last report.

Rust infection is severe on most of the winter-wheat varieties, and it is noticeable on some of the spring wheats. Turkey (C. I. No. 7364) and Turkey (local) winter wheats seem to show the greatest infection at this time, and Kanmarq and Awnless No. 28 show the least. Some of the hybrids in the winter-wheat nursery seem to show resistance to rust. With the advent of warmer weather, the rust infection perhaps will become worse.

The precipitation recorded in the first half of June was 3.69 inches as compared to 3.18 inches as the normal for the entire month. The maximum temperatures were 90 degrees and 84 degrees on June 8 and 9, respectively, while the minimum temperatures were 42 degrees and 44 degrees on 12 and 4, respectively.

J. T. Sarvis, of the Northern Great Plains Field Station, Mandan, N. Dak., visited the Substation on June 15.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (June 16)

Cool weather has prevailed for the first half of June. There has been less cloudy weather than in May, however, and crop growth has been more rapid.



Crops are growing rapidly but are less than their usual size at this time of the year. Corn especially is backward, the stand being uneven in the varietal plats and in the nursery. Some damage is reported from cutworms and wireworms in corn and small grains.

Plats on the Substation are being trimmed and roadways and nursery rows have been cultivated. The last seeding in the date-of-seeding and flax tillage experiment will be made today. This completes the seeding of cereal experiments with the exception of a few seedings in the smut nursery that are being made at 10-day intervals.

On a recent trip to Mandan and Fargo it was noticed that small grain is in good condition all along the line and that corn is rather backward in growth. Some corn was just emerging. Hay land and pastures are in excellent condition except that some areas were thinned out as the result of the previous dry season.

The maximum temperatures in the first half of June was 81 degrees; minimum, 39 degrees. The precipitation for the period from June 1 to 16 was 0.96 inch.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (June 16)

Better growing conditions have prevailed in the first half of June than in May. Temperatures, although generally low for this time of the year, have been moderate enough to promote satisfactory growth. Although there has been very little rainfall since June 1, there is enough moisture left from the exceptionally heavy rainfall in May so that crops are not yet suffering from drought.

All of the flax seedings are making good growth. The flax and wheat mixtures and some of the flax nursery seedings are very weedy. The flax varietal plats are cleaner than usual.

Cutworms, first noted on June 10 working on some of the flax seedings, threatened to cause severe loss. About 22 cutworms already have been taken from the flax-sick soil nursery alone. The worms work along the rows from the edges towards the center. A single worm, if permitted to continue unmolested, will destroy an entire row of flax. The worms are detected readily and destroyed early in the morning, but others are constantly taking their places, especially along the south side where they come in from an adjacent stubble plat.

Maximum temperature for the first half of June, 82 degrees, June 7; minimum, 39 degrees, June 4, 5, 11 and 12; precipitation, 0.13 inch.

Visitors at the Station on June 14 included President John Lee Coulter, of the North Dakota Agricultural College, and R. W. Smith and son Glenn, of the Dickinson Substation.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (June 16)

All cereal crops are in fine condition. Because of the heavy precipitation in May and the cool temperatures for the first half of June, the wheat, oat, and barley plants have made a very vigorous vegetative growth.

The cereal plats and nursery have been trimmed and weeded and the alleys have been cultivated.

The first leaf rust pustules were found on June 13. Although temperatures have been cool, infection is spreading rapidly. Some of the more susceptible varieties already are heavily infected. No stem rust has been found.

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

#### WESTERN BASIN AND COAST AREAS (North to West and South)

#### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

#### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

#### OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

#### CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

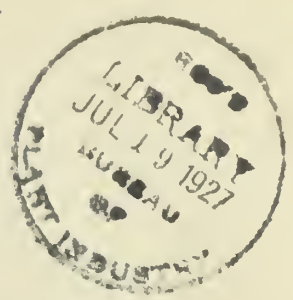
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CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)



Vol. 19

No. 15

June 30, 1927  
Personnel (June 21-30) and Project Issue

PERSONNEL ITEMS

Miss Dorothy E. Bossert, junior clerk in the Office of the State Leader of barberry eradication at Brookings, S. Dak., resigned her position June 30.

Dr. H. B. Humphrey, senior pathologist in charge of cereal rust investigations, wrote from Manhattan, Kans., on June 10, as follows:

"I am having a wonderfully interesting trip and have traveled something over 1,600 miles by automobile, all the way from La Fayette through Indiana, Illinois, Iowa, and Nebraska to this point in Kansas. Incidentally, I picked up much information concerning the distribution and prevalence of the different rusts. Stem rust is not present anywhere until one reaches a point near Omaha. From that point on westward through Nebraska to Chester, thence southward in Kansas to Minneapolis and eastward to this point, a trace of stem rust only is to be found. It is present on both wheat and oats, but one has to search long and diligently to find a single pustule. Leaf rust of wheat, on the other hand, is abundant everywhere, ranging anywhere from 15 to 100 per cent in prevalence and severity. We inspected two or three barley fields and in one of them I found both stem rust and leaf rust. Crown rust of oats seems fairly general and in some fields in the Kaw Valley of Kansas bids fair to become epidemic. There also is some halo blight of oats.

"Both wheat and oats are in full head and in bloom in most instances. Some fields of wheat in the Solomon Valley of Kansas are in the dough stage of development. Winter barley near Salina has been harvested.



"As for corn, at the time of my visit in Indiana and Illinois, many fields had not yet been planted. In northern Illinois some farmers are only now plowing their land in preparation for corn. The rains have been frequent and heavy; as a consequence, the land is water-logged where the soils are heavy. In Nebraska and Kansas, corn seems to be in a normal state of advancement. Here in the Kaw Valley I saw some corn yesterday that was nearly knee high. The practice of listing, prevalent throughout that portion of Nebraska and of Kansas covered by Mr. Thiel and me, seems universal and apparently is an excellent practice, at least so far as the corn crop is concerned."

Dr. Humphrey wrote from Pullman, Wash., on June 24, as follows:

"Throughout my trip through Montana, I noted the fact that crop conditions were very generally excellent. There was promise of a bumper wheat crop in all of the principal wheat growing areas of the State. In the Judith Basin the precipitation during the month of May was 5.8 inches. The crop prospect in that section of Montana is especially promising. Nothing short of hail or hot, burning winds can prevent a bumper crop. Naturally, Montana people are optimistic."

"Here in Washington and Idaho, the wheat crop looks very promising. Dr. Gaines told me that something over 200,000 acres of Redit wheat were sown last fall and that probably there would be a yield of approximately 6,000,000 bushels from that acreage this summer. Albit, a white wheat selected from a cross between Hybrid 128 and White Odessa, quite as smut resistant as Redit, has been distributed to a few farmers and I am to see some of those fields today."

"Dr. Gaines suffered the misfortune of having had his nursery very badly damaged by hail, the first experience of the kind that he has had in his 15-years' employment here. Some of the late-heading varieties were nearly destroyed, though there may be sufficient recovery to enable him to obtain the necessary seed for next year's sowing. At Moscow, there was no hail and the condition of the nursery was fully equal to if not better than that of any previous year within my experience in the Palouse country."

"After I have completed my work here in Washington and Idaho, I shall return eastward, stopping at Missoula, Montana, where, on July 1, I am scheduled to talk to the barberry-eradication men who will be assembled there incident to their assignment of territory. From Missoula, I shall proceed to South Dakota where I shall be joined by Mr. Bulger and shall spend two or three days with him. I shall then go to Fargo for conference with Mr. Mayoue before proceeding to St. Paul and other points east."

C. H. Kyle, agronomist in corn investigations, left Washington June 28 for New Orleans and Baton Rouge, La., to confer with officials of agricultural experiment stations and make observations on cooperative corn experiments.

Dr. E. B. Lambert, assistant pathologist in cooperative rust epidemiology studies at University Farm, St. Paul, Minn., was granted the degree of Ph. D. by the University of Minnesota on June 13.

Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, Dr. J. H. Martin, associate agronomist in charge of grain sorghum and broomcorn investigations, and W. J. Sando, associate agronomist in eastern wheat investigations, left Washington June 29 for Blacksburg, Va., to assist officials of the Virginia Agricultural Experiment Station in the cooperative investigation of methods of harvesting small grains with a combine in comparison with other methods of harvesting.

Dr. Leighty will leave Washington about July 4 for Columbus, Ohio, La Fayette, Ind., Urbana, Ill., and Ames, Iowa, to study the operation of the combined harvester-thresher in comparison with other methods of harvesting grain, and to confer with cooperators. He will be in the field until August 15.

R. W. Leukel, associate pathologist in charge of nematode investigations, spent June 23 in the vicinity of Rockville, Montgomery County, Md., to obtain specimens of diseased wheat and to have photographs made of a badly infested field where refuse from a chicken coop had been put previous to sowing the wheat.

Mr. Leukel will leave Washington on June 27 for Madison, Wis., to take notes on seed-treatment experiments for the prevention of stripe disease of barley, conducted in cooperation with the Wisconsin Agricultural Experiment Station. He also will collect infested seed and diseased material for laboratory study.

Dr. M. N. Levine, associate pathologist in the cooperative cereal-disease investigations at University Farm, St. Paul, Minn., came to Washington on June 25 for conferences with officials of the Office and to prepare cooperative manuscripts.

K. S. Quisenberry, associate agronomist in western wheat investigations, who has been in wheat-growing areas of the West since early June, writes as follows from Manhattan, Kans., on June 22:

"On June 3, in company with Dr. P. C. Mangelsdorf, of the Texas Agricultural Experiment Station, I looked over the work of the substation at Denton. Because of continued dry weather and a very heavy leaf-rust epidemic yields of wheat may be rather low. Officials of the Texas station are enthusiastic over their new variety, Denton, which is being increased for distribution.

"On June 5, heavy rains and hail in parts of northern Texas and in Oklahoma did considerable damage in local areas. On June 6 the Lawton (Okla.) Field Station was visited. In the wheat varietal experiments, Blackhull showed most promise. Wheat harvesting was starting in the vicinity of Lawton. Very few combines were in use in this section, much of the grain being harvested with binders.

"At Stillwater, Okla., on June 7, wheat and oats on the agricultural experiment station were still green. With the abundance of moisture they probably will ripen slowly. West of Enid, Okla., binders were starting on June 3. Wheat looked very well in this vicinity. June 9 was spent at the Woodward Field Station. Here wheat was ripe. On the Station farm it was being bound, but farmers were waiting for the crop to ripen enough to use the combine.

"Several days were spent in the vicinity of Newton, Kans., in the attempt to get information on Blackhull and Superhard wheats. On June 13, in company with J. H. Parker and Dr. C. O. Johnston, of the Kansas Agricultural Experiment Station, a visit was made to the farm of Earl G. Clark, the originator of Blackhull and Superhard. Mr. Clark still strongly believes in Blackhull and his new Superhard in spite of the determined fight being made against these varieties by the millers of the State. Mr. Clark stated that about 10,000 acres of Superhard are being harvested this year.

"From Newton, Mr. Parker and I went to Hays, Kans. Because of continued rains bus schedules were canceled and we had some trouble in making the trip. We traveled west from Newton to Grand Bend, then north to Hays by bus. Wheat between Great Bend and Hays was very poor but probably it will be helped by the recent rains. At the Ft. Hays Branch Station the heavy rains have greatly improved the plats and general fields and delayed the harvest. Tenmarq, a new wheat variety developed by the Kansas station, looked very promising in comparison with Kanred and Blackhull.

"We reached Manhattan on June 16 and found the ground well soaked and rain still falling. The wheats in the nursery are badly lodged in most cases, although some stiff-strawed strains are standing up fairly well. The plats at the farm are showing some lodging but not so much as in the nursery.

"At the present time the entire State of Kansas is thoroughly soaked. There has been no rain now for two days (June 22), and reports from the southern part of the State indicate that combines will start soon. It would seem that possibly a wet harvest is in prospect."

Dr. V. F. Tapke, associate pathologist in cereal smut investigations, received the degree of Ph. D. from Cornell University on June 13.

J. W. Taylor, associate agronomist in charge of cereal experiments at the Arlington Experiment Farm, went to Lively, Va., on June 28 to study methods of harvesting small grains with a combined harvester-thresher, the first one operated commercially in Virginia.

#### VISITORS

Gordon K. Middleton, an agricultural missionary in China for several years, who has been at Cornell University for the past year, majoring in plant breeding, was a visitor in the Office on June 22.



Nickolas Schmitz, extension agronomist, Pennsylvania State College, and J. B. R. Dickey and H. B. Musser, assistant extension agronomists, visited the Office on June 20 and 21. On the latter date a trip was made to the Arlington Experiment Farm, Rosslyn, Va., where the different experiments with winter wheat, oats, and barley were inspected.

Dr. Curt Th. Sedlmayr, of the Agricultural Experiment and Plant Breeding Station near Vienna, was an Office visitor on June 21. Dr. Sedlmayr is interested mostly in cereal and sugar beet breeding. The experiment plats at the Arlington Experiment Farm were explained to him by Dr. C. E. Leighty and T. R. Stanton.

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# MANUSCRIPTS AND PUBLICATIONS

44 A manuscript entitled "A Study of Growth Habit and Rust Reaction in Crosses between Marquis, Kota, and Kanred Wheats," by Olaf S. Aamodt, was approved June 23 for publication in *Phytopathology*.

45 A manuscript entitled "Correlation between Yielding Ability, Reaction to Certain Diseases, and Other Characters, in Rod-Row Trials of Spring and Winter Wheats," by H. K. Hayes, O. S. Aamodt, and F. J. Stevenson, was approved June 23 in the *Journal of the American Society of Agronomy*. (for publication)

46 A manuscript entitled "Nature of Resistance to Smut in Corn," by C. H. Kyle, was submitted June 28 for publication in the *Journal of Agricultural Research*.

Galley proof of article entitled "Factors Affecting Certain Properties of a Mosaic Virus," by H. H. McKinney, for publication in the *Journal of Agricultural Research*, was read June 22.

Galley proof of article entitled "Quantitative and Purification Methods in Virus Studies," by H. H. McKinney, for publication in the *Journal of Agricultural Research*, was read June 27.

Galley proof of Department Circular 424 entitled "Further Studies on Flag Smut of Wheat," by W. H. Tisdale, C. E. Leighty and Benjamin Koehler, was read June 27.

Galley proof of Miscellaneous Circular 108 entitled "Copper-Carbonate Seed Treatment for Stinking Smut of Wheat," by V. F. Tapke and F. C. Meier, was read June 30.

Department Bulletin 1481 entitled "Experiments with Fall-Sown Oats in the South," by T. R. Stanton, R. R. Childs, J. W. Taylor, and F. A. Coffman, was received June 22 from the Government Printing Office, bearing date of May, 1927. (In cooperation with the Georgia State College of Agriculture.)

The article entitled "A Cytological Study of Orange Leaf Rust, Puccinia triticina Physiologic Form 11, on Malakoff Wheat," by Ruth F. Allen, appears in the *Journal of Agricultural Research* 34 (8): 697-714, pls. 1-7. April 15, 1927. (Received June 24.) (Cooperative investigations, Agricultural Experiment Station of the University of California, and Office of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.)

## UNITED STATES CIVIL SERVICE COMMISSION

WASHINGTON, D. C.

B/Fj

May 23, 1927.

RETIREMENT CIRCULAR NO. 54.

SUBJECT: Loss of Right to Annuity for Total Disability.

TO HEADS OF DEPARTMENTS AND INDEPENDENT ESTABLISHMENTS:

The Retirement Act of July 3, 1926, contains the following provision in Section 6, Disability Retirement:

No claim shall be allowed under the provisions of this section unless the application for retirement shall have been executed prior to the applicant's separation from the service or within six months thereafter.

The Act of May 22, 1920, contained no such limitation.

This Commission knows of ailing employees who did not apply for disability annuity within six months following their separation; and there is reason to suppose that such cases will occur under the restriction of July 3, 1926. Employees resign on advice of their superiors or their physicians, in an effort to regain their health; or may be dropped for unsatisfactory service or non-attendance due to ill health; and not know, until they have lost it, that they had eligibility for disability annuity.

Frequent changes of personnel officers, who may be no more familiar with the restriction than the employees themselves, increase this danger.

The Commission calls attention to the matter without offering any suggestion for averting it except, possibly, by the widest practicable publicity, or by urging repeal of the restriction.

By direction of the Commission:

Very respectfully,

JOHN T. DOYLE,

Secretary.

PROJECT REPORT

## OAT INVESTIGATIONS

(T. R. Stanton, Agronomist in Charge, and F. A. Coffman, Associate Agronomist)

Uniform Winter Hardiness Nursery, 1926-1927 (Preliminary Report)

For the first time, uniform winter oat-hardiness nurseries were grown at seven experiment stations and at one commercial seed farm in six southern States in 1926-1927. Sixteen varieties and strains were included in each of these nurseries.

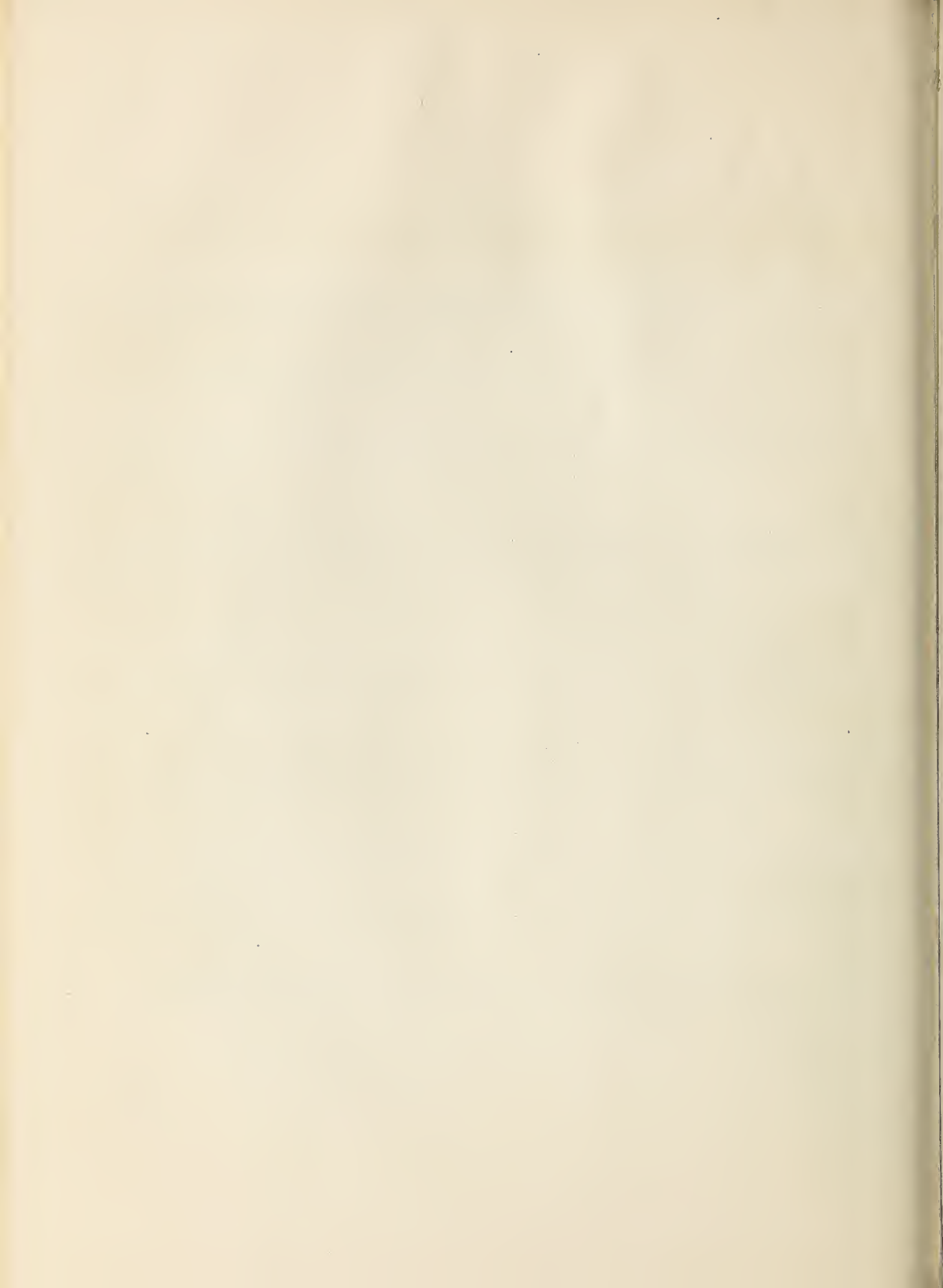
Individual station and average data obtained from all the nurseries except one are shown in the accompanying table. Complete winter survival was reported for Clemson College, S. C., and A. & M. College, Miss. The lowest average winter survival for all the varieties and strains as a group was recorded at the Arlington Experiment Farm, Rosslyn, Va., followed in order by Fayetteville, Ark. and Blacksburg, Va. Dwarf Culberson (C. I. No. 273-41-203) and Red Rustproof (Appler) on the average showed the least winterkilling, and Red Rustproof (Ferguson No. 71, C. I. No. 344) the most. However, the difference between these extremes was only 11.9 per cent. This may be of little significance, as the factors of soil type, heaving, etc., probably played a more important rôle than inherent varietal differences in resistance to cold. These data, however, are based on spaced seeding and exact counts of fall stand and survival of plants at the end of winter and are presented for what they are worth.

Individual and average percentages of winter survival of fall-sown oat varieties grown in cooperative uniform winter hardiness nurseries at seven agricultural experiment stations in the South in 1926-1927

Variety	C. I. No.	Location of experiment stations <sup>1/</sup>							Average for 7 stations
		Ar- ling- ton Expt. Farm, Ross- lynVa.	Blacks- burg, : Va. : : : :	Ath- ens, : Ga. : : : :	Ex- peri- ment: Col- lege, S. C.: : : : :	Clem- son Col- lege, Miss.: : : : :	A.&M.: Fay- ette- ville: : : : :		
Bicknell	:206-155	:14.8	:61.6	:96.6	:85.1	:100	:100	:44.8	71.8
Culberson	:273	:5.4	:60.6	:97.8	:30.6	:100	:100	:48.4	70.4
Dwarf Culberson	:748	:22.9	:73.5	:97.8	:83.9	:100	:100	:33.3	73.8
Hairy Culberson	:273-41-203	:18.6	:32.6	:89.9	:87.6	:100	:100	:84.3	73.3
Tech	:947	:15.3	:29.5	:97.8	:82.6	:100	:100	:42.4	66.8
Fulghum	:708	:8.2	:51.3	:97.5	:96.4	:100	:100	:13.3	66.7
Do (Winter form)	:699-2011	:11.9	:61.5	:100.0	:94.0	:100	:100	:37.3	72.1
Red Rustproof	:	:	:	:	:	:	:	:	:
(Ferguson No. 71)	:844	:0.0	:57.7	:87.1	:85.4	:100	:100	:3.4	61.9
Do (Texas Red)	:775	:3.5	:51.1	:97.7	:96.6	:100	:100	:3.4	64.6
Nortex (Texas No. 1118)	:1450	:8.4	:52.5	:94.5	:86.7	:100	:100	:41.0	69.0
Red Rustproof	:	:	:	:	:	:	:	:	:
(Appler)	:1815	:10.1	:54.1	:100.0	:94.3	:100	:100	:58.0	73.8
Culred	:518-189	:18.5	:33.0	:91.8	:75.0	:100	:100	:37.5	65.1
Winter Turf	:409	:25.3	:46.3	:98.9	:87.1	:100	:100	:33.3	70.1
Do Sel.	:435-4	:14.1	:45.7	:95.5	:80.6	:100	:100	:44.1	68.6
Custis	:2041	:11.0	:54.7	:94.3	:81.4	:100	:100	:39.5	68.7
Lee	:2042	:8.4	:69.4	:96.2	:69.1	:100	:100	:13.6	65.2
Average for all varieties	:	:12.2	:52.5	:95.8	:85.4	:100	:100	:36.1	68.9

<sup>1/</sup> Report from Coker Seed Co., Hartsville, S. C., received too late to be included in summary.





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BUREAU OF PLANT INDUSTRY

CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 16

July 10, 1927  
Personnel (July 1-10) and Field Station (June 16-30) Issue

PERSONNEL ITEMS

Miss Katherine E. Abbott, of Denver, Colo., was appointed clerk, effective July 1, to assist in the office of the State Leader of barberry eradication with headquarters at Ft. Collins, Colo. She succeeds Miss Winifred Watson who resigned June 8.

J. Allen Clark, agronomist in charge of western wheat investigations, wrote from Nephi, Utah, on July 4 that he finished the study and harvest of wheat hybrids and foreign introductions in the nursery at Davis, Calif., on June 16. He conferred with officials of the Oregon Agricultural Experiment Station, Corvallis, on June 18, and visited Prosser and Lind, Wash., on June 20 and 21, respectively. On June 22 he was at Fullman, Wash., with Dr. E. Dorsey and Dr. R. G. Wiggans, of Cornell University, and Dr. H. B. Humphrey.

On June 23, Mr. Clark conferred with officials of the Idaho Agricultural Experiment Station, Moscow. Accompanied by Profs. H. W. Hulbert and J. D. Remsberg, of the agronomy department, he visited the Sandpoint Substation, a new station in the cut-over section of northern Idaho. Field day was observed at the Substation on June 25; about 500 people inspected the experiments.

Mr. Clark attended the Conference of the Western Section of the American Society of Agronomy, held at Moro, Oreg., June 27, 28 and 29, and presented a paper entitled "The Registered Varieties of American Wheats: Their Class, Origin, and Acreage." The wheat nurseries at Moro, Pendleton, and Union, Oreg., were inspected a few days later. On July 2, at Aberdeen, Idaho, Mr. Clark inspected the breeding nursery at the Aberdeen Substation. On July 4, he inspected the wheat experiments at the Nephi (Utah) Substation and fields in the vicinity of Nephi. He found wheat in good condition, especially under irrigation.

Dr. Harry H. Gardner, since July, 1926, agent in the cooperative cereal-disease investigations and experiments at La Fayette, Ind., resigned his position on June 30 to accept a position with the N. V. Potash Export My., of New York City.

Miss Myrtle M. Grove was appointed July 1 to assist in the office of the cooperative cereal-disease investigations at La Fayette, Ind. She will fill the position left vacant by the resignation of Mrs. Thelma T. Webb on June 15.

L. D. Hutton, associate pathologist in barberry eradication, will leave Washington about July 14 to travel in the States of the barberry-eradication area. He will inspect field operations and confer with State leaders and cooperators engaged in the barberry-eradication campaign, and probably will be in the field until the end of August.

H. S. Jackson, who has been on sabbatical leave from Purdue University since September 18, 1926, engaged in special study at the University of Wisconsin, has returned to his duties at La Fayette, Ind., and has been reappointed as agent in the Office of Cereal Crops and Diseases. Mr. Jackson will study, determine, and describe new or little-known Uredinales and Ustilaginales.

Miss Grace A. Nyman was appointed on July 1 to assist in the office of the State leader of barberry eradication in South Dakota with headquarters at Brookings. Miss Nyman will fill the position left vacant by the resignation of Miss Dorothy E. Bossert, who resigned on June 30.

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#### VISITORS

Horace M. Jones and Harry Rilling, State leaders of boys and girls club work in South Dakota and North Dakota, respectively, were Office visitors on June 13.

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# MANUSCRIPTS AND PUBLICATIONS

Galley proof of Technical Bulletin 10 entitled "The Productiveness of Corn as Influenced by the Mosaic Disease," by Hugo F. Stoneberg, was read July 1.

The Phytopathological note entitled "An Emendation of the Description of Ophiobolus heterostrophus," by Charles Drechsler, appears in Phytopathology 17 (6): 414. June, 1927. (Cooperation between the Office of Cereal Crops and Diseases and Office of Vegetable and Forage Diseases, B. P. I.)

The article entitled "Strains of Kernel Smuts of Sorghum, Sphacelotheca sorghi and S. cruenta," by W. E. Tisdale, L. E. Melchers and H. J. Glenner, appears in the Journal of Agricultural Research 34 (9): 825-838, figs. 1-4. May 1, 1927. (Received July 8.) (Cooperation between Office of Cereal Crops and Diseases and Office of Dry Land Agriculture and Kansas Agricultural Experiment Station.)

Fourteen articles by members of the scientific staff of the Office appear in the U. S. Department of Agriculture Yearbook for 1926. They are listed as follows:

Soy-Bean Rotation Increases Rice Yields Greatly, by Charles E. Chambliss

Wheat Varieties for the Western United States, by J. Allen Clark.

Wheat Varieties Resistant to Stinking Smut, by E. F. Gaines.

Barley Varieties New to the United States, by Harry V. Harlan.

Flax Rust Control through Immune Strains Possible, by Arthur W. Henry.

Corn Varieties Resistant to Rot Disease, by James R. Holbert and James G. Dickson.

Barberry Eradication in Wheat Areas, by F. E. Kempton and L. D. Hutton.

Wheat Breeding for Resistance to Leaf Rust, by C. E. Leighty.

Wheat Mosaic Control through Immune Strains, by H. H. McKinney.

Corn Breeding in New Experiments, by Frederick D. Richey.

Stem Rust in Many Varieties Attacks Grain, by E. C. Stakman.

Oat Varieties for the Winter Wheat Belt Yield Well, by T. R. Stanton.

Wheats Highly Resistant to Loose Smut, by V. F. Tapke.

Smut Control by Disinfectants in Growing Favor, by W. H. Tisdale.



FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)  
(July 6)

The harvest of the small-grain crops is nearly finished and threshing is under way. Dry, cool weather greatly facilitated the harvest and so far has been favorable to the curing of the grain. With the exception of 0.32 inch of rain on July 1, there has been no rainfall since June 23. The precipitation for April was 1.77 inches higher than the 15-year average, but that for both May and June was below the normal.

As usual barley yields show wide fluctuations largely because of soil productivity and drainage, as spring stands were good. Esaw, selection from Nakano Wase, produced the highest grain yield,--56.5 bushels per acre, while the parent variety from which the selection was made yielded 5.4 bushels per acre. Nakano Wase naturally hybridizes freely and no doubt the selection is a descendant of a natural cross between Nakano and one of the winter forms.

The yields of the winter barley varieties for 1927 are presented in the following table.

Average grain yield obtained from duplicate 40th-acre plats of winter barley, and the comparison of the variety with the yields of the four nearest check plats, grown at Arlington Experiment Farm in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Actual Yield</u> (Bu. per acre)	<u>Av. Yield of 4</u> <u>plats includ-</u> <u>ing checks</u> (Bu. per acre)	<u>Gain or loss</u> <u>from check</u> (Bu. per acre)
Esaw	----	56.5	44.8	11.7
Orel	351	31.2	23.4	7.8
Pidor	901	29.7	23.4	6.3
Tennessee No. 12	3534	42.0	36.4	5.6
Han River	2163	24.5	23.4	1.1
Scottish Pearl	297	35.2	35.8	- .6
Tennessee No. 61	3545	35.7	36.4	- .7
Tenkow	646	34.7	35.8	- 1.1
Tennessee No. 66	3546	35.2	36.4	- 1.2
Wisconsin Winter	2167	22.2	23.4	- 1.2
Tennessee Winter	257	33.0	35.8	- 2.8
Alaska	4106	30.8	36.4	- 5.6
Tennessee No. 52	3543	15.1	22.4	- 7.3
Tennessee Beardless 6	2746	34.9	44.8	- 9.9

Continued

Variety	C.I.No.	Actual Yield (Bu. per acre)	Av. Yield of 4 plats includ-	Gain or loss from check (Bu. per acre)
			ing checks (Bu. per acre)	
Tenn. Beardless 5	3384	32.5	44.8	-12.3
Nakano Wase	754	5.4	22.4	-17.0
Meth. Mixture	4115	25.3	44.8	-19.5
Nakano Wase	2166	2.6	22.4	-19.8
Composite Cross	4116	22.4	44.8	-22.4
Wisconsin Winter <sup>1/</sup>	2159	34.4	----	----

<sup>1/</sup> Average of 12 check plats.

The data obtained this season on the value of Semesan, the mercuric seed treatment, on winter barley, were variable, though, on the average, favorable to the treatment. An excellent control of both smuts was obtained on the susceptible varieties, Wisconsin Winter and Tennessee No. 52 (C. I. 3543).

Average grain yield of duplicate 40th-acre plats of winter barley sown with Semesan-treated seed and untreated seed

	Semesan-treated seed	Untreated seed	Per cent of smut in untreated seed <sup>1/</sup>
Wisconsin Winter	40.6	36.5	10.3
Tennessee No. 52 <sup>3543</sup> <sub>2/</sub>	19.5	17.7	20.3
Orel	31.2	30.1	0
Nakano Wase	5.4	2.9	0

<sup>1/</sup> An absolute control of the covered smut and an excellent control of the loose smut was obtained with Semesan-treated seed

<sup>2/</sup> Triplicate-plat test.

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

# NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)  
[July 1]

A school of instruction for field men going out on the barberry force in Illinois this season was held at Urbana, June 9 and 10. The various problems relating to barberry eradication in this State were discussed by the State Leader and field men who had been on the force previous to this year.

Dr. W. L. Burlison, head of the agronomy department, College of Agriculture, talked to the field men and gave them many timely suggestions on methods of dealing with the citizens of the State in a manner that would build up a closer and more desirable relationship between the agricultural agencies and institutions of the State and the people they are striving to serve.

The barberry eradication campaign in Illinois has been in full swing since June 16, when the last of the force of 25 men were put in the field. The original survey of St. Clair, Clinton, and Marion counties was completed by July 1. Several plantings were found in each county. Foot scouting in East St. Louis required much time.

Indications are that losses from stem rust in Illinois will be very slight this year. A trace of stem rust infection has been found on wheat, rye, barley, and oats in nearly all the counties of northern Illinois, but in no case has the infection been reported as more than a mere trace. Harvest is in full swing in southern counties and will get under way in central and northern counties within a few days. Leaf rust is prevalent throughout the State.

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer) (June 30)

The last five per cent of Columbiana County was covered by intensive original survey in early June. In this district only one escaped barberry was found.

Two per cent of Geauga County was completed by intensive original survey in the latter part of June. This survey was done in a part of Claridon Township where barberries are not so numerous as in other portions of the county.

In addition, 75 per cent of Lawrence County was gone over by a modified intensive original survey. No barberries were found in Lawrence County in June.

Five men were in the field at the beginning of June. A sixth man started on June 3. Two more started on June 15 and the ninth man began on June 16. Two additional agents began work on June 20 and the 12th man went into the field on June 21.

On June 18 M. A. McCall, agronomist in charge of cereal agronomy investigations, paid us a visit.



On June 15 and 16, respectively, Dr. J. J. Christensen, University Farm, St. Paul, Minn., traveled with the writer in central and western Ohio to obtain general data on the black stem rust situation.

The uredinial stage of the black stem rust has been found on wheat in the following places on the dates mentioned: May 19, Franklin County; June 15, Union, Logan and Miami counties; June 16, Montgomery, Preble and Lawrence counties; June 19, Delaware and Morrow counties; June 21, Knox County; June 24, Wayne and Ashland counties; June 26, Pickaway, Ross, and Pike counties; June 27, Scioto, Gallia, Athens, and Meigs counties; June 28, Washington, Noble, Guernsey and Licking counties.

So far this year no black stem rust has been found on oats or on rye although many fields have been examined for it. Leaf rust is heavy on wheat, oats, and rye all over the State.

Rust on barberries is unusually light this season. A light sprinkling of stem rust can be found now in almost any wheat field in Ohio with little difficulty; however, the damage is going to be slight for the wheat is ripening rapidly. In only one instance this year, has rust been noted spreading from barberries. In this one case the spread was severe but well confined. Wheat cutting started in southern Ohio about June 20.

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)  
(June 24)

Present indications are that barberries in Michigan will be infected without a single exception. Infection was found as early as April 28, and this represents the earliest known date of infection for our State. Since that date every bush examined has been found to be very heavily infected.

Final instructions have been given to the field men, and we expect to take the field with 30 men on June 29. Five men will be assigned to each of the following counties; namely, Benzie, Leelanau, Grand Traverse, Antrim, Charlevoix, and Emmet. These counties are in the northern and western part of the lower peninsula and border on Lake Michigan.

Many thousands of barberries already have been eradicated from these counties, and many more await the arrival of the men with salt. Extensive and really unexpected spreads of bushes in areas of escapes make it imperative that each county be covered by the intensive survey method.

#### WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker) (June 20)

Strip scouting is now being continued in Dane, Rock, Sauk, Grant, and Kenosha counties. This type of survey was started last year in these counties in territory which was thought to need the most intensive scouting. The men now report that they are in territory which can be covered much faster than the thickly covered woodlots and river banks which required the attention of most of the crews last summer.

Infection on barberries has been rather light this spring. To date no bushes have been found which are very heavily infected. The first infection was found on April 30. At Madison on June 10 two pustules of uredospores were found on quack near a barberry bush. No additional pustules have been found at this or other locations since that date. A trace of leaf rust was found last week on wheat and rye. The grains in the State appear to be at their normal growth.

#### MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, -----)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

#### GREAT PLAINS AREA (South to North)

#### OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)  
[July 1]

The weather of the last half of June was favorable for wheat harvest, sorghum planting, and weed killing. There was one rainy period from the 20th to the 23d, inclusive, but the showers were light and did not greatly interfere with field operations.

The last of the sorghum plats were seeded on June 25, and conditions were so favorable for germination that stands were obtained by the 29th. The work of thinning is progressing and cultivation closely follows thinning. Due to the dry weather in May the sorghum plats are not so far advanced as usual.

From information available, the wheat yield in the vicinity of Woodward will be about average, around 9 or 10 bushels per acre, which seems to be a poor yield when compared with that of 1926.

Maximum temperature, 101 degrees on the 27th; minimum 56 degrees on the 17th; precipitation, 0.73 inch; total precipitation for June, 4.30 inches.

#### KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J.H.Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A.M.Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C.O.Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

#### COLORADO

Agricultural Experiment Station, Ft. Collins (Barberry Eradication, E. A. Lungren) [June 18]

The barberry-eradication training school has finished its course with an extensive field trip on which a practical application of the class work was demonstrated. The enthusiasm and interest of the members of the class gave promise of excellent work in the field during the coming season.

Both resurvey and second survey were carried on in Larimer County in May.

Fifty escaped bushes were found growing on one irrigation ditch which runs through Mr. Ruples' farm west of Loveland. Several of these bushes were infected but the aecia had not opened to spread the spores.

Several rains occurred throughout the irrigated sections during the latter part of May and the first week in June.

The work for June will continue with second survey of Larimer County.



[July 5]

On July 1, the annual rust and barberry conference was held at the Botany Department of the Colorado Agricultural College. Following the meeting the field men started in the field. At present we are foot scouting the rivers and ditches in Larimer County. Several large escaped bushes have been found along the Cache la Poudre River. We expect to finish the northern part of the county by the middle of July and then move to Loveland, where we have a big job of surveying all the ditches and rivers.

The State Leader did some epidemiology work in eastern Colorado the last week in June. The first trace of stem rust was found near Yuma, Yuma County; stem rust was present to a slight degree in every field examined up to the State line. At that time winter wheat was far enough along to escape damage from stem rust.

Leaf rust is more prevalent in Colorado this year than in the past five years. It has been found to be very heavy in eastern Colorado on winter wheat. It also is prevalent in the spring-wheat area.

#### NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague) (July 1)

Hot weather and hot winds are ripening winter wheat rapidly and are beginning to damage the spring grains. Corn is not suffering in the least and is making very rapid growth. The earliest varieties of winter wheat are almost fully ripe, while all of the other varieties of winter wheat are turning. Nearly all the varieties of the spring small grains are in full head. Corn is about knee high. Harvest may begin next week.

The more important work done the last two weeks of June included note taking, thinning corn, weeding alleys and roadways, and roguing mixtures from the varietal plats.

Leaf and stem rust infection is severe on most of the winter-wheat varieties and on several of the spring-wheat varieties. No rust has been detected on oats or barley. The spring wheat varieties having the greatest infection are Ruby, Hard Federation, Quality, and Kota.

The maximum temperatures recorded for the last half of June were 99 degrees and 97 degrees on June 24 and 28, respectively; the minimum temperatures were 50 degrees and 51 degrees on June 20 and 16, respectively. The precipitation recorded for June was 4.89 inches, which was 1.71 inches above normal. All of this precipitation was recorded previous to June 20.

Byron Rhodes, 17-year old son of Raymond Rhodes, the farm foreman, died on June 28.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)



## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)  
(June 20)

Stem rust is beginning to develop on grains and grasses in South Dakota. On June 14, one pustule was found on rye and one pustule on Mindum wheat. Both of these finds were made in the plats of the College farm at Brookings. This is the first report of stem rust on rye and wheat in the State this season. Leaf rusts of wheat and rye are general over eastern South Dakota and the infection is unusually heavy for this time of year.

The first infection on barberries was found on May 18 in Brookings County near Volga. On the following day, barberries were found infected in Lake, Moody, and Minnehaha counties. By May 25, aecial infection had developed rapidly and was severe on the bushes under observation. On June 8, three barberries were found on second survey in the eastern part of Brookings County. Infection was unusually heavy, and the cluster cups apparently had been shedding spores for some time.

On June 4, the first pustule of stem rust was found on oats in the vicinity of Madison, Lake County. Later the same day another pustule was found on oats near Mitchell in Davison County. On June 11, two more pustules of stem rust were found on oats, one near Alexandria in Hanson County, and another in McCook County near Bridgewater. Three more pustules of stem rust on oats were found near Sioux Falls in Minnehaha County on June 14.

While the first infection on barberries was found somewhat later than usual this year, the first infection on grains is the earliest ever reported in South Dakota, according to past records. In 1919, the first uredinial infection was found on June 6. Other dates of the earliest infection on grains and grasses range from June 9 in 1923 and 1926, to June 23 in 1924. The dates of the first infection on barberries range from May 2 in 1919 to May 21 in 1924.

## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (July 1)

Temperature and moisture conditions in June have been very favorable for the growth of the small grains. A hailstorm on June 19 bruised all crops considerably and damaged winter rye to the extent of about 80 per cent. This storm extended across several counties in the southwestern part of the State. That portion of Stark County lying south of Dickinson suffered the greatest losses, some fields of rye being totally cut off by the hail. Aside from rye, the cereal grains at the Substation were not yet headed at the time of the storm. As a result of being bruised by hail the cereal crops, which already were later than usual, will be still further delayed, making harvest probably 10 days later than usual. The total precipitation for the month was 2.12 inches. This is nearly an inch less than usual, but the deficiency is more than offset by the surplus of water that fell in May. The temperature was slightly below normal in June.

Early varieties of wheat, oats, and barley are just beginning to head. Rye was nearly fully headed at the time of the hailstorm.

A small amount of leaf rust is present on winter and spring wheat, but as yet no stem rust has been seen.

Plats have been trimmed and roads cultivated and the nursery rows have been cultivated and hoed.

Unless hot weather prevails in July the corn will be much later than usual this year. Throughout the State considerable interest is being manifested in trench silos and several are being built this summer in this part of the State.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (July 2)

General crop prospects in this locality are better than for many years. Moisture has been abundant, and high temperatures during the latter half of June have favored crop development. On June 28, first blooms appeared on flax sown April 20 in the date-rate-and-tillage experiment. The following day, June 29, first blooms appeared on flax sown April 30 and May 11.

However, some factors have caused severe individual losses. Cutworms continued very bad for a time, though with gradually diminishing activity nearly to the end of June. The report of June 16 should have read, "About 200 cutworms already have been taken from the flax-sick soil nursery alone." Since that date about 150 more have been removed from the flax-sick soil nursery.

A severe hail and rain storm on June 19 damaged crops considerably. Some damage was noted in all of the flax seedings, but in general only about 1 per cent of the plants were injured beyond recovery. The greatest injury was to the earliest sown flax, and amounted to about ten per cent. Flax sown June 10 in the date-rate-and-tillage experiment showed severe injury a few days after the storm, but the injury appeared to be caused by hot weather. The injury was not localized at the soil line, as in typical heat canker, but was characterized by a curling and withering of leaves or entire plants. The flax nursery in the ravine was damaged in places by washing out of soil.

Another severe storm, with heavy rainfall, wind, and hail, greatly damaged crops southeast of Mandan, and also damaged trees and buildings in Bismarck. One man was killed by a falling tree.

The single plat of Reserve flax (C. I. 19), emerged with a good stand, and appeared as good as the other varieties during the cool weather of early June. Since the hot weather the latter part of June, this plat has been nearly wiped out by wilt.

Maximum temperature during the last half of June was 89 degrees on June 27; minimum, 48 degrees on June 30; precipitation, 1.82 inches. The total precipitation in June was only 2 inches, which is about an inch and a half below normal for June. The total precipitation for the first six months of 1927, however, was 11.51 inches, which is about three inches above normal for this period.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (July 2)

The cereals in the experiments are growing rapidly and some of the earlier varieties of wheat and oats are fully headed. All cereals are later this year than usual.

On the farms in this district early seeded wheat is heading and prospects are for a better crop than for many years. A number of fields of wheat have been examined and a rather heavy infection of leaf rust was found.

Hail storms have been reported in many localities causing slight damage to crops in some cases and a total loss in others. A severe hail storm occurred in this locality on June 19, causing considerable damage to all crops on the station and on farms adjoining it. Winter rye, which was almost in the blooming stage, suffered most; the estimated damage was 90 per cent. Other cereal crops were not so far advanced and therefore were not so badly injured. The earlier maturing varieties of wheat and oats were injured more than the later maturing ones.



## MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

## WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(July 2)

Favorable weather for cereals prevailed in eastern Oregon during the entire month of June. No high temperatures were recorded, and in some localities the precipitation was considerably above normal.

The total precipitation for June at Moro was 0.80 inch, or slightly above normal. Most of this precipitation occurred in two showers, one of 0.3 inch on the 8th, and one of 0.36 inch on the 26th. In many locations in Gilliam and Morrow counties from 1 to 1.5 inches were recorded on June 8. The precipitation for May was 0.7 inch, making the total for the four months, March 1 to June 30, inclusive, 3.58 inches. This is about the average for that period.

The highest temperature recorded in June was 80 degrees on the 21st and the lowest was 40 degrees on the 27th.

Winter wheat is beginning to ripen in northern Sherman, Gilliam, and Morrow counties on the lower elevations. Most of the wheat has a golden color, and rather high yields are indicated. Farmers in Sherman County are expecting from 25 to 35 bushels per acre from their winter wheat. In southern Sherman County the wheat is not so far advanced but it is still in good condition. Prospects for good crops in the vicinity of Grass Valley and Kent are better than they have been for several years.



On the station most of the winter barley has been harvested, and the early varieties of winter wheat are beginning to ripen. Fall-sown Federation probably will be ready to cut by July 10. Yields and grain quality will be better than last year. Indications are that the winter wheats in the varietal trials will yield from 25 to 35 bushels to the acre.

Results in our smut nursery this year indicate the prevalence of a new biologic form of stinking smut. Hitherto resistant and immune varieties show a high percentage of infection this year. White Odessa probably is about 50 per cent smut and Martin from 15 to 20 per cent smut; Albit about 10 per cent; Hussar and Redit also have some but not a very high percentage. Oro is nearly smut-free, but Regal has more than 10 per cent smut in it.

The inoculum used was obtained from F. W. Nelson, of the Grain Supervision Office of the Bureau of Agricultural Economics at Portland. The smut spores were obtained from a carload of seed shipped to Portland from the Palouse section of Washington.

It is possible that conditions here were so favorable for bunt infection last fall that varieties that have shown marked resistance to this disease until this year were rendered susceptible. However, Hussar, Martin, and Odessa have been sown for so many years under varying conditions in several States that this does not appear possible. Additional evidence that we may have a new biologic form is that some varieties like Federation, Fortyfold, and Jenkin which previously have been very susceptible to smut, show considerable resistance this year. Each of these varieties contains less smut than White Odessa. Hoenheim also has very little smut this year, but in previous tests it has smutted quite badly.

Of the many hybrid selections tested for smut resistance there are very few that are smut free.

Dr. E. F. Gaines, who inspected our nursery this week, was of the opinion that the inoculum we used contained the same form of stinking smut that is prevalent in Germany.

The Agronomic Conference held in Moro on June 27, 28, and 29, was a decided success. More than fifty agronomists were in attendance. Many very interesting and well-prepared papers were presented. Three sessions were held daily, morning, afternoon, and evening. A report of the meetings will be printed in the Journal of the American Society of Agronomy.

In addition to the many distinguished visitors we had during the conference, we were favored recently by a short visit from Dr. R. G. Wiggans, of Cornell University.

#### CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell) (July 1)

The harvest of the experiments at Davis is nearly completed. All that remains is a group of wheat plant selections and several hybrids grown in bulk. The plant selections will be permitted to stand several days, when further selections of the best rows will be made. The best plants from the bulked hybrids will be selected and immediately threshed for summer seeding.

The plat experiments have been threshed. Bushel yields per acre have not been calculated but it is hoped that there will be opportunity to do this the coming week. Nursery threshing is in progress and is about half completed.

During the past week there have been several days of strong north winds. Although I have heard no report of loss through shattering, there must have been considerable in any grain that remains unthreshed.

Dr. E. Dorsey, of Cornell University, arrived on June 8 to harvest and study Dr. H. H. Love's wheat hybrids. He left on June 17 to return to New York.

Dr. R. G. Wiggans, also of Cornell University, arrived early in June from China en route to New York. While at Davis he took advantage of the opportunity to harvest and study Dr. Love's nursery in cooperation with Dr. Dorsey. He and his family left on June 16 for Ithaca by automobile.

J. Allen Clark, in charge of western wheat investigations, arrived at Davis on June 6 to study and harvest hybrid wheat material. He remained until June 17.

Summer has arrived in earnest. Yesterday the temperature was reported to be over 100 degrees, and today it is fully as warm.

I returned this morning from Moro, Oreg., where I attended the Conference of the Western Section of the American Society of Agronomy, June 27, 28 and 29. About 60 men were present, and many very interesting papers were presented.

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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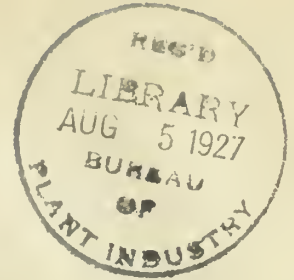
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## CEREAL COURIER

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(NOT FOR PUBLICATION)

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No. 17

July 20, 1927

Personnel (July 11-20) and Field Station (July 1-15) Issue

### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, left Washington July 19 to attend the corn-borer conference at Toledo, Ohio, on July 20 and 21. He also will visit some of the infested areas to see the appearance of the fields after the clean-up campaign. He then will spend some days with the State leaders of barberry eradication in Ohio and Indiana, determining the present status of the campaign and the nature and scope of the problems remaining. He will return to Washington August 5.

F. A. Coffman, associate agronomist in oat investigations, who has been in the field since June 20, wrote on July 7 from Ames, Iowa, of his progress. At Columbia, Mo., some very interesting cereal breeding experiments were seen. Small grains on the Station farm looked very well. At Manhattan, Kans., leaf rust had seriously cut the yields of oats and wheat, although the yields of both will be fair. Some of the wheat will yield very well. Crops in the nursery had lodged badly. Kanota and Fulghum were badly lodged both in the nursery and field plats. It was interesting to note that one of the Burt oat selections made at Akron, Colo., in 1921 showed very stiff straw as compared with the other oats. A survey of the yield data for this selection proves it to be very favorable. It has ranked near the top of all the Burts. It also has light colored kernels.

In company with Professors Parker and Laude and Mr. Quisenberry, Mr. Coffman motored from Manhattan through northeastern Kansas, where crops looked very well. It was surprising to see the prevalence of Kanota; fully 75 per cent of the oat acreage was of that variety. At Hays, Kans., on June 28 it was found that although dry weather had reduced crop prospects some 20 bushels, wheat was being harvested. On the Cereal Project wheat, oats, and barley were being cut. Late rains had helped prospects for oats very much. The June rainfall at Hays was far above the normal.



On June 29, Mr. Coffman reached Ft. Collins, Colo., where crops are good, as usual. Some of the strains selected from the "Early Kanred" made at Akron in 1921 appear to have promise. Except for the earliest varieties, oats were not yet headed.

At Akron on July 1 a good crop was in prospect. All crops were later than usual but were far better than any produced there since 1923; winter wheat probably was the best grown since 1920. The station was in excellent condition and all prospects were good. Barley and oats should yield well above the average for Akron. Corn was in good condition, although slightly backward.

On July 2, Mr. Coffman arrived at North Platte, Nebr. Crops are late but prospects are excellent. Late rains in June had changed crop conditions favorably in the central plains section. Barley looked exceptionally well at North Platte as well as at Akron. There seems to be little doubt that barley should replace oats in most of that general section.

The best crops of wheat, oats, and corn seen anywhere were in southeastern Nebraska and northeastern Kansas. Much of the wheat should yield 30 to 40 bushels and a few fields may yield even more. At the Nebraska Experiment Station it is thought that wheat is the best in its history or at least very nearly so. Barley prospects at Lincoln are far above the usual and oats probably will yield very well also. Corn prospects are excellent in that section.

Mr. Coffman left Lincoln, Nebr., on July 6, arriving at Ames, Iowa, in the evening. Most of the crops in Iowa, after leaving the Missouri River Valley, are rather backward. Corn is short but growing well. Oats are headed, but few fields have started to ripen. Mr. Coffman expects to remain at Ames for a number of days looking over the oat nursery.

B. H. Duddleston, associate agronomist in the cooperative investigations of corn root, stalk and ear rots at La Fayette, Ind., who has been engaged in graduate study at Cornell University since October 1, 1926, has returned to his duties at La Fayette.

Dr. A. G. Johnson, senior pathologist in charge of cereal-disease investigations, left Washington July 17 for a two-week trip in Indiana, Illinois, Iowa, Michigan, Wisconsin, North Dakota, South Dakota, and Minnesota to confer with investigators at field stations and with officials of agricultural experiment stations regarding cooperative cereal-disease investigations.

F. D. Richey, agronomist in charge of corn investigations, left Washington on July 18 to attend the meeting of the Department Corn-Borer Committee at Toledo on July 20 and 21. He also will go to other points in Ohio and will visit Monroe, Mich., and Chatham, Ont., in connection with the corn-borer campaign. Mr. Richey will return to Washington about June 21.

W. J. Sando, associate agronomist in eastern wheat investigations, left Washington on July 18 to visit localities in Maryland, Pennsylvania, and Delaware to study methods of harvesting small grains in relation to quality. He will be in the field about three weeks.

T. R. Stanton, agronomist in charge of oat investigations, who has been traveling in the oat sections of the west since June 26, wrote from Lincoln, Nebr., on July 8 that in Ohio he found crop conditions rather backward owing to the cold, wet spring. Oats at Columbus were about fully headed, while at Wooster only the early sorts were beginning to head. In the varietal plats at Columbus an Ohio selection of Fulghum, which was about six inches taller than the parent variety, looked unusually promising.

Wheat in Ohio generally was in excellent condition and prospects were promising for a big crop. Corn was exceedingly backward, most plants being only four to six inches in height, and many fields had not been cultivated for the first time. In Indiana and Illinois crop conditions were similar, except that corn seemed to be a little farther advanced. In a few fields in eastern Illinois, corn was knee-high or better. However, along the Illinois Central Railroad from Champaign to Chicago nearly all corn was very backward.

The prospects for wheat are good in these States. The first harvested wheat was seen on July 2 just east of Danville, Ill.

Crop conditions in southwestern Iowa along the route of the C. R. I. & P. R. R. appeared better than in Illinois and Indiana. Wheat harvest was on and the crop appeared to be good. Corn in general was much larger than any noted previously. However, oats appeared to be heading and ripening rather short. In eastern Nebraska crop conditions probably are better than they have been for several years. Both wheat and oats are excellent and the prospects for corn are much better than in the States eastward.

Mr. Stanton reports from Ames, Ia., on July 18 that crops generally in Iowa need rain badly. There has been no rain, except one or two light sprinkles, for over a month. However, corn is making considerable growth and is in fair to good condition. The surplus soil moisture accumulated during the wet spring apparently has enabled the crop to keep right on growing.

Oats have suffered materially from the dry weather, and undoubtedly late oats will be exceedingly light. At the Agronomy Farm of the Iowa Agricultural Experiment Station early oats are ripening in fairly good condition, but reports from other parts of the State indicate that early oats have been affected by the dry weather. Most of the wheat is in the shock and a good crop has been harvested. Hardly any threshing reports are available so far, therefore, it is not yet known just how yields are going to run.



About two-thirds of the oat nursery at the Agronomy Farm has been harvested. Both crown and stem rust of oats are quite prevalent on many of the varieties, especially those in the identification nursery, which are being grown on very rich soil. It is not believed that many valuable data will be obtained from the special nursery that was sown for a study of shattering, since all varieties are ripening prematurely because of drought.

J. W. Taylor, associate agronomist in eastern wheat investigations, left Washington on July 20 to study the operation of the combined harvester-thresher in comparison with other methods of harvesting grain and to confer with coöperators in Illinois, Indiana, and Ohio. He also will go to Lexington, Ky., and to Morgantown, West Va. Mr. Taylor expected to join Dr. C. E. Leighty at Urbana, Ill., on July 21.

#### ----- VISITORS

Señor Luis Maria Del Carril, agronomist, of Corrientes, Argentina, visited the Arlington Experiment Farm on July 14, inspecting the small-grain and corn-breeding experiments.

Dr. Victor Talanoff, Chief of the Plant Introduction and Variety-Testing of Institute of Applied Botany, U. S. S. R., of Leningrad, Russia, is traveling in the United States with his daughter, studying methods of organization and research in connection with plant introduction and improvement. Dr. Talanoff has been in and out of the Office for the past week assembling information regarding his itineraries.

Dr. W. H. Tisdale, of the E. I. du Pont de Nemours Company, Wilmington, Del., conferred with members of the Office staff on July 20.

# MANUSCRIPTS AND PUBLICATIONS

47 A manuscript entitled "Diversity in the Colorado Pinto Bean," by F. A. Coffman, was approved on July 11 for publication in the Journal of the American Society of Agronomy.

48 A manuscript entitled "The Inheritance of Resistance in Oats to Puccinia graminis avenae," by S. M. Dietz, was submitted on July 13 for publication in the Journal of Agricultural Research.

49 A manuscript entitled "Biometrical Studies on the Variation of Physiologic Forms of Puccinia graminis tritici and the Effects of Ecological Factors on the Susceptibility of Wheat Varieties," by M. N. Levine, was submitted to the Journal of Agricultural Research on July 14.

50 A manuscript entitled "Smut Susceptibility of Naturally Resistant Corn When Artificially Inoculated," by Marion A. Griffiths, was submitted on July 15 for publication in the Journal of Agricultural Research.

Page proof of Department Circular 424 entitled "Further Studies on Flag Smut of Wheat," by W. H. Tisdale, C. E. Leighty, and Benjamin Koehler, was read July 16.

Nebr. Agr. Col. Ext. Circ. 128 (revised) entitled "Reduce Stem-Rust Losses by Barberry Eradication," by A. F. Thiel, was received July 13. (Cooperation between Office of Cereal Crops and Diseases and Extension Service of the University of Nebraska Agricultural College.)



FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (July 7)

Weather conditions in June were favorable for rice, but at times, the quantity of rain was too much for cultivated crops.

The total precipitation amounted to 5.71 inches. Cloudy or partly cloudy weather occurred during three-fourths of the month.

The maximum temperature recorded was 94 degrees F., which is much lower than has been recorded for June in several years.

The moist cloudy weather accompanied by rather uniform temperatures during the month, had a very stimulating effect on plant growth.

Work on the station progressed favorably during the month.

All rice was irrigated and with few exceptions the plats are up to a good stand and comparatively free of weeds.

Cotton plats, seeded for the third time, are up to a good stand and growing nicely.

All soybean plats were seeded in the early part of the month. Frequent rains resulted in good stands over the entire farm. Cultivation has progressed nicely and all cultivated areas are in good condition.

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

#### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

#### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

#### IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

#### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer) (July 15)

Infection on barberries in the spring of 1927, in Ohio, was, on the whole, much lighter than usual. There were fewer cases of heavy infection on barberries than usual. So far stem rust has been observed spreading from barberries in only one instance. In this particular place the rust appeared early on the barberry, and uredinia appeared early on near-by wheat; but even though the rust became severe on wheat near the barberry, the epidemic was well confined to a place a few yards from the bush.

We have again the annual sprinkling of rust in wheat fields all over the State. It appeared later than the rust on wheat near barberries but gained impetus as harvest time approached. The general sprinkling of stem rust on wheat was heavier, for the State as a whole, than it has been in the last eight years. The source of this sprinkling of rust remains a matter of conjecture. Most of the wheat in the State escaped stem-rust damage. The loss of wheat on account of stem rust for Ohio probably will not exceed one per cent of the total crop.

So far stem rust on oats has been noted in many fields in southern and central Ohio but it is very light and the oats are ripening rapidly. Apparently there will be no appreciable loss of oats this year on account of stem rust.

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, -----)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)



## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghums, J. B. Sieglinger)  
(July 16)

The weather of the first half of July was rather dry, although from the 10th to the 14th, inclusive, there was a slight shower each day.

Throughout Woodward County almost all the wheat is threshed, the yields running from two to ten bushels per acre. Corn is tasseling but needs rain. The sorghums are relatively late this year.

Sorghum in plats on the Cereal Project has been thinned, and stand counts are being made. The June 10 seedings are growing rapidly. Whether good yields of sorghum are obtained this year depends on the precipitation from now on, as the plats are in nice condition at present.

Maximum temperature for first half of July, 100 degrees on the 9th; minimum, 56 degrees on the 3rd; precipitation for the month to date, 0.71 inch., which occurred on five days.

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)  
(July 16)

All threshing on the Cereal Project was finished today. Yields of wheat were low, averaging about 10 bushels per acre. Oats and barley yields will be about 25 bushels to the acre.

The rainfall for the first 16 days of July was less than one inch; however, the temperature has been relatively moderate so that row crops have not suffered in any way. The excessive June rains have been of much benefit. Corn is now in tassel and some of the earlier strains also are in silk.

It is said that corn is in excellent condition throughout all of northwestern Kansas. The acreage is very large in this section because of the extensive abandonment of wheat.



About 200 members of the First International Soil Congress visited the Station on June 29. While they were primarily interested in soil profile and types, they were keenly interested in methods of crop production in the Great Plains area. Large farm power units attracted their attention.

O. T. Bonnett, a graduate student who assisted on the Cereal Project during the harvesting and threshing of small grains, resigned to accept a position with the Wyoming Agricultural Experiment Station at Laramie. K. P. Nickoloff, a student in this country from Bulgaria, was appointed to fill Mr. Bonnett's place.

Nearly all of the wheat has been harvested in this section. Probably one-half of the acreage was combined. Seed-bed preparation for wheat is progressing rapidly.

#### COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

#### NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May, for G. F. Sprague)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R.W.Smith) (July 15)

Weather conditions have been favorable for cereal crops this month. More rain is needed, however. The total precipitation for the month to date is 0.38 inch. Good rains of local extent have been reported in adjoining localities. A few local hailstorms have been reported. The maximum temperature for the month was 89 degrees on the 10th and the minimum was 39 degrees on the 2nd. Hot weather prevailing during the past week has improved the condition of the corn, although corn and other cereal crops are from 10 days to two weeks later than usual.

Early varieties of wheat, oats, and barley are now fully headed and the latest varieties are beginning to head.

Some smut is appearing in both the wheat-smut and oat-smut nurseries. Considerable leaf rust is present, but only a trace of stem rust has appeared either on wheat or oats.

The Substation was visited on July 3 by the members of the Farm Managers' Association, who were on a tour of the State. F. A. Coffman, associate agronomist in oat investigations, visited the Substation on July 14 and 15. On July 31 about 70 Ohio livestock feeders and breeders will visit Dickinson and the Substation. The annual Substation picnic will be held July 30.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (July 18)

Flax in the varietal plats and in most of the nursery is in full bloom.

Climatic conditions in the first half of July were very favorable for crop development. Temperatures were moderately warm, without extreme heat or cold. There was very little rain until nearly the middle of the month, when there was a rainfall of nearly an inch and a half. The total precipitation for the first half of July was 1.73 inches. The maximum temperature was 85 degrees, July 11; minimum, 40 degrees, July 1.

Visitors in the period from July 1 to 15 included Dr. Georg Blohm, Privatdozent d. Landwirtschaft a. d. Universität, Halle a. S., Germany, J. Allen Clark, agronomist in charge of western wheat investigations, and F. A. Coffman, associate agronomist in oat investigations. A. C. Dillman, associate agronomist in charge of flax investigations, came on July 15 to take notes on the flax classification nursery.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (July 18)

The wheats in the varietal plats and in the nursery are fully headed, with the exception of some hybrid material which was seeded late. All the cereals in this locality are in fine condition; the earlier seeded fields of wheat are in the milk stage.



Stem rust was first found on the station on July 11. Only a slight infection has been found in the fields in this area. There is a heavy epidemic of leaf rust. Notes taken on the leaf-rust infection in the wheat nursery showed the different varieties to have from a trace to 80 per cent of leaf rust.

The earlier oat and barley varieties are fully headed. All cereals show the injury from the hailstorm previously reported in reduced stands and in the number of late tillers found on the plants.

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)  
[July 3]

Original survey in the last two weeks of June disclosed the fact that weather conditions during the spring had been particularly favorable for barberry seed germination in the western valleys of Montana. During the period from June 20 to June 30, more than 100 fruiting bushes and 13,000 seedlings were destroyed in Missoula County. The work of eradicating escaped areas in Lake County has been resumed with similar findings regarding the seedling situation.

On July 2, Dr. H. B. Humphrey, senior pathologist in charge of cereal rust investigations, met with the Montana field men in Missoula, and gave a very interesting and enlightening discussion on survey and eradication methods throughout the eradication area. Dr. Humphrey had made a study of areas of escapes in Montana. In his discussion, which was based on local conditions, he cited specific locations as examples.

(July 15)

We are finding a great many bushes in these western counties, many of which are escapes. My recent trip to the eastern part of the State was for the purpose of checking up on the rust situation. I found leaf rust on winter wheat more prevalent than usual. However, it is not at all serious. Hardly any stem rust was found except right in the vicinity of Glendive. A very limited area in Dawson County seems to have been infected quite early in the season, as the infection appears between the crown and first node. A sample of this material was sent to Dr. Stakman.

Crop conditions throughout the State are very favorable and though there is a fairly rank growth of straw, and conditions have been quite favorable for rust spread, it is quite noticeable that rust is more scarce in Yellowstone and Richland counties than it has been in the past at this date.

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(July 8)

The results obtained this year in our breeding investigations for bunt-resistant wheat varieties will necessitate a revision of our opinions as to which varieties of wheat really possess bunt-resistance. There were sown in the nursery last fall 144 varieties and selections of wheat, all of which were thoroughly coated with smut from material obtained from A. F. Nelson, of the Grain Supervision Office of the Bureau of Agricultural Economics in Portland. Most of the varieties and selections contained so much smut in the crop this year that they were discarded from observation. The following table was compiled by J. Foster Martin from counts made by him. Hybrid 128 was used as a check; every row contained more than 95 per cent smutted heads.

Percentage of stinking smut in winter wheat varieties and selections at Moro, Oregon, in 1927

Variety or Selection	C. I. or Selection Number	Per cent smut
Oro	8220	0.33
Turkey	1558A	3.10
Regal	7364	7.00
Crimean (3055A)	7366	0.60
Sherman	4430-5	32.30
Hussar	4843	1.00
Turkey x Florence	G314W-8	0.40
Ridit	6703	7.70
Turkey x Florence	G326W-1	0.00
Do	G326W-3	0.60
Do	G326W-8	0.90
Martin	4463	21.30
Hoenheim No. 77	----	4.80
White Odessa	4655	51.50
Turkey x Turkey		
Florence Hybrid 128	23741-2	0.70
Albit	----	12.70
Hussar x Hybrid 128	25448-1	3.30
Hard Federation x Martin	21234B1-3-1	0.00
Do	21234B2-1-3	0.68
Do	21234C5-6	0.00
White Odessa x Hard Federation	1-4-7	2.90
Hussar x Marquis	20159A4-21-3-2	0.90
Hard Federation x Hussar	20150B14-4-2-2	3.70
Do	20150B14-1-4	0.80
Do	20150B9-14-2	0.40
Do	20150B1-19-2-1	0.00
Hussar x Hard Federation	20151D10-1-1-1	1.70
Do	20151C4-23-1-1	0.30
Galgalos No. 39	----	62.90



## WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

(OREGON See page 230)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (July 4)

About the middle of June I made a trip to Merced to see how the rice was doing in the Merced Irrigation District. About 15,000 acres, largely on new land, were sown to rice in this district this spring. The ditch capacity was found to be too small for such a large acreage and as a result some growers were quite late in obtaining water, in fact, the last of the rice was not irrigated until about the middle of June, which is too late for best results.

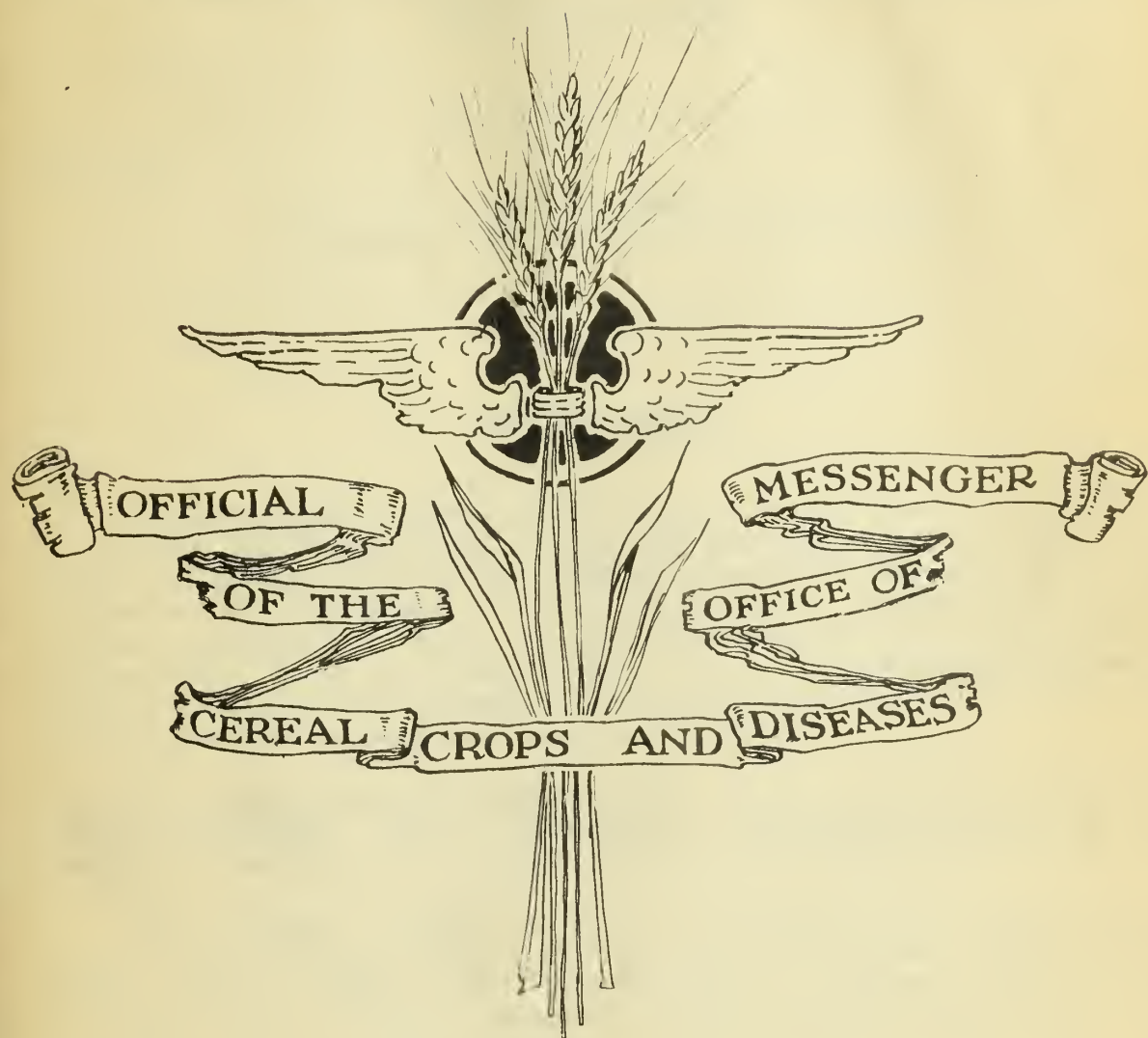
The rice sown and irrigated early looks fairly good, but it is not so vigorous as rice grown on new land in the Sacramento Valley. Part of the rice acreage is on uneven land and the stands are thinner than they should be. On some fields that were sown to rice the alkali is too concentrated for the growth of rice and these fields probably will be abandoned. Low levees in some fields will make it impossible to hold deep water and as a result yields will be reduced. The drainage system should be improved to make harvesting more certain and less costly. The prospects are not so good as they should be in a new rice area.

In this section the stands of rice on commercial fields appear to be better than usual, and the rice is growing quite rapidly. In May the average maximum and minimum temperatures at the Station were about 2 degrees below the average for the past six years. The maximum and minimum temperatures for June are nearly the same as the average for the past six years.

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE



## CEREAL COURIER

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July 31, 1927  
Personnel (July 21-31) and Project Issue

### PERSONNEL ITEMS

J. Allen Clark, agronomist in charge of western wheat investigations, wrote from Great Falls, Mont., on July 22 that after leaving Nephi, Utah, on July 4 he had inspected the wheat experiments at Cheyenne, Wyo., North Platte and Lincoln, Nebr., St. Paul, Minn., Fargo, Mandan, and Dickinson, N. Dak., and Moccasin, Mont. Mr. Clark expected to start very soon for Havre, Mont., to go by automobile with a party of Federal and Montana station officials to visit Canadian agricultural experiment stations at Lethbridge, Swift Current, Indian Head, and Saskatoon.

The annual picnic was held at Moccasin on July 21 and was attended by about 6,000 people. Gov. J. E. Erickson, Congressman Scott Leavitt, and Dean J. M. Hamilton of the State college, spoke on the McNary-Haugen bill.

A. C. Dillman, associate agronomist in charge of flax investigations, wrote from Dickinson, N. Dak., on July 21 that he had left Mandan the previous evening in order to see the experiments at Dickinson before going on to Bozeman, Mont., where he expected to arrive on July 22 and remain until July 27. He will return to Mandan, N. Dak., on July 29 and will be at St. Paul, Minn., on July 31.

Mr. Dillman reported crops in excellent condition at Dickinson, especially wheat. Only a trace of stem rust could be found and apparently it was not likely to do any damage unless unusual conditions should arise. There is considerable flax in the country and it is in fair condition. A severe cold spell about the middle of May had destroyed the Russian thistles and the fields uncommonly free from this pest this year.

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W. Douglas Mankin, who has been assisting in the investigations and experiments of cereals at the Arlington Experiment Farm, Rosslyn, Va., since January 2, 1926, resigned on July 30 in order to accept a position with the Spencer Lens Company, Buffalo, N. Y.

F. A. Coffman, associate agronomist in oat investigations, wrote from Aberdeen, Idaho, on July 22 that after leaving Ames, Iowa, on July 11 he had stopped at St. Paul, Minn., Mandan, and Dickinson, N. Dak., and Bozeman, Mont., and had arrived at Aberdeen on July 19. T. R. Stanton expected to remain at Ames until about the end of July. The oat crop at Ames was in danger of being cut short by dry weather; there had been no rain for three weeks. Mr. Coffman noted that oats at Ames were badly infected with leaf rust and that the percentage of smutted plants in oats was greater than he had ever before seen at that place. Some traces of stem rust on oats were found.

At St. Paul, Minn., considerable oat smut was seen in some of the plats. However, the crosses growing in the nursery were practically free from smut.

Crop prospects at Mandan and Dickinson, N. Dak., were very good. At the latter place most of the oats had not yet headed owing to the rather backward season.

At Bozeman, Mont., all crops were backward. Oats were only starting to head and spring wheat was not more than 50 per cent headed in most plats.

At Aberdeen crops as a whole appeared to be normal. Oats were a trifle shorter and about 10 days later than last season, which, however, was somewhat unusual. Oats were only starting to ripen. Mr. Coffman expected to be able to harvest and study a few crosses before August 1, but not many. Most of the hybrids made in the greenhouse at Arlington Farm last winter grew well at Aberdeen and are in good condition now.

Barley was ripening rapidly. Dr. Harlan and Miss Martini were being kept very busy making and harvesting a large number of hybrids.

The nursery seedings of oats, barley, and wheat at Aberdeen this season are much more extensive than before.

On July 20, when the oats were being irrigated and the soil was too wet to walk on, Mr. Coffman accompanied Superintendent McClymonds and County Agent Tillotson of Power County, Idaho, on a trip to harvest three wheat nurseries. Each contained eight winter wheat varieties in triplicated 2-row plats. Seedings had been made of bunt-infected, copper-carbonate treated, and untreated seed of each variety. The varieties varied widely as to percentage of smut infection, but the seed treatment was extremely effective in bunt prevention. The trip afforded an excellent opportunity to become better acquainted with the dry-land sections of Idaho near Aberdeen and American Falls.

Dr. J. H. Martin, associate agronomist in charge of grain sorghum and broomcorn investigations, returned on July 21 from Blacksburg, Va., where he spent about three weeks assisting officials of the Virginia Agricultural Experiment Station in harvesting rye, wheat, and oats with a combined harvester-thresher loaned to the Station. They were unsuccessful in harvesting wheat which had gone down badly after maturity. During the period of the harvest it rained about two days out of three. The threshed grain that was not too damp was successfully dried by spreading it out on the barn floor.

Dr. Martin left Washington again on July 25 for La Fayette, Ind., to relieve J. W. Taylor, associate agronomist in eastern wheat investigations, who for the past week had been studying the operation of the combine in Illinois and Indiana and was to leave for South Dakota to engage in the same study there. Dr. Martin expected to take part in the combined harvester-thresher investigations at La Fayette, Ind., for about 10 days. From there he will proceed to Sacaton, Ariz., and other stations in the Southwest to investigate the grain sorghum situation. Before his return to Washington about the end of September he will visit Woodward, Okla., and Hays, Kans., in the interests of grain sorghum and broom corn investigations.

Prof. L. E. Melchers, head of the department of botany and plant pathology, Kansas State Agricultural College, Manhattan, Kans., and agent of the Office of Cereal Crops and Diseases, is to be on leave of absence for a year, beginning September 1, to conduct some special plant pathology studies for the Egyptian Ministry of Agriculture. His headquarters will be at Cairo and Giza. He first will make a careful survey of the leading agricultural crop districts along the Nile to ascertain the outstanding economic plant pathology problems. This will be followed by a report to the Egyptian Government with suggestions and outlines for research on the outstanding problems. It also is planned to establish a system of plant-disease survey records for Egypt.

Prof. Melchers will sail from New York on September 3, landing at Antwerp. From there he will proceed through Holland to Berlin, Germany, to attend the International Genetics Conference. Then he will proceed down the Rhine to Frankfurt, through Austria and Switzerland to Venice, Italy. From Venice he expects to take a boat for Alexandria.

Marion T. Meyers, agent in the cooperative investigations in connection with corn improvement at the Ohio State Department of Agriculture, Columbus, Ohio, resigned his position on July 20 to accept an appointment with the Bureau of Entomology, of the U. S. Department of Agriculture.

Dr. L. F. Randolph, associate cytologist in cytological and morphological studies of corn, in cooperation with the department of botany of the Cornell University, who has been on leave of absence since September 16, 1926, engaged in study in Europe under a fellowship granted by the International Education Board, has been authorized by the Secretary of Agriculture to attend the Fifth International Conference on Genetics to be held in Berlin, Germany, from September 12 to 17, 1927. At the conclusion of the Conference Dr. Randolph will proceed to Ithaca, N. Y. Dr. Randolph's name will be restored to the rolls of this Office on September 9.

The temporary appointment of Dr. C. S. Reddy, agent in the cereal-disease investigations conducted cooperatively with the Iowa State College of Agriculture, at Ames, Ia., was terminated on July 31, 1927.

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#### VISITORS

Dr. Tsunejiro Imaseki, Professor, Imperial Tokyo Sericultural College, and Chemist, Imperial Agricultural Experiment Station, Nishigahara, Tokyo, and Prof. Hideo Misu, Head of Chemical Division, Agricultural Experiment Station, Government-General of Chosen, Japan, were Office visitors on July 25. They were especially interested in information on rice culture.

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MANUSCRIPTS AND PUBLICATIONS

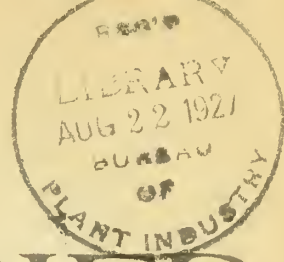
Galley proof of article entitled "Theoretical Aspects of Small Grain Breeding," by C. E. Leighty, for publication in the Journal of the American Society of Agronomy, was read on July 22.

Misc. Circ. 108 entitled "Copper-Carbonate Seed Treatment for Stinking Smut of Wheat," by V. F. Tapke and F. C. Meier, was received from the Government Printing Office on July 21.

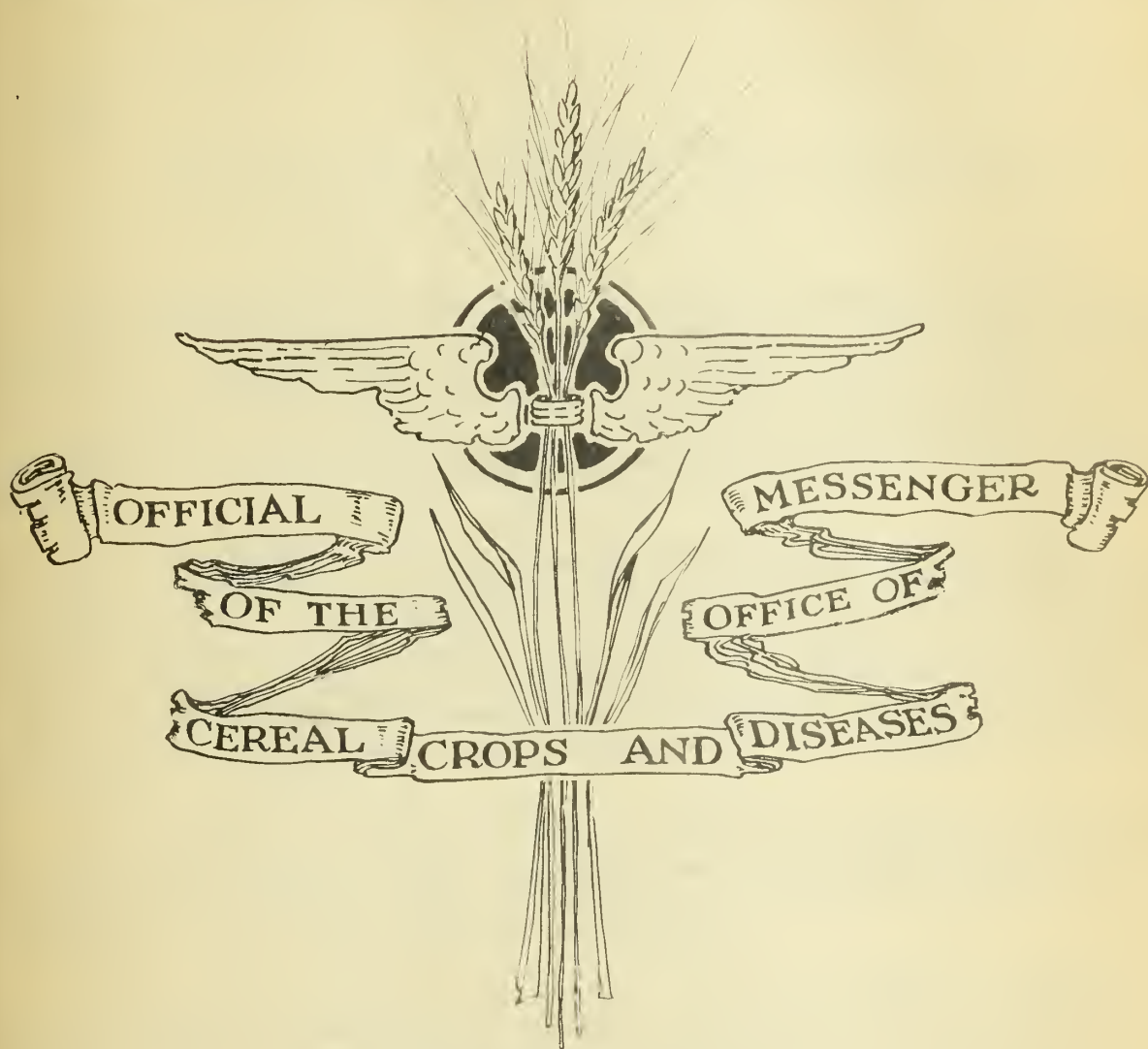
The article entitled "Variants in Ustilago muda and Certain Host Relationships," by W. H. Tisdale and Marion A. Griffiths, appears in the Journal of Agricultural Research 34 (11): 993-1000. June 1, 1927. (Received July 27.)

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# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE





## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

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Vol. 19

No. 19

August 10, 1927

Personnel (August 1-10) and Field Station (July 16-31) Issue

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Dr. C. R. Ball, senior agronomist in charge, returned to Washington on August 3, having attended the corn borer conference at Toledo, Ohio, on July 20 and 21. He visited the corn borer laboratories at Monroe, Mich., and Oak Harbor, Ohio, and conferred with experiment station officials concerning corn borer research in Ohio, Indiana, and Illinois. He also studied the progress and status of the barberry eradication campaign in portions of the same three States.

Dr. G. N. Hoffer, agent in charge of corn root rots and metallic-poisoning investigations in cooperation with the Purdue University Agricultural Experiment Station at La Fayette, Ind., has been granted leave to go to Europe on September 1 to study the physiological research and field experiments of several of the universities and experiment stations in Germany, France, Belgium, Italy, The Netherlands, and England. Dr. Hoffer's research at La Fayette will be taken care of during his absence by Messrs. Trest, Duddleston, and Smith.

L. D. Hutton, associate pathologist in barberry eradication, returned to Washington on August 6 after spending three weeks studying field problems and methods of survey in connection with barberry eradication in the States of Iowa, Ohio, Indiana, and Illinois.

R. W. Leukel, associate pathologist in charge of nematode investigations, returned to Washington on August 4 after spending several weeks at Madison, Wis., studying seed-treatment experiments for the prevention of stripe disease of barley, in cooperation with the Wisconsin Agricultural Experiment Station.

M. T. Meyers: The statement with reference to the resignation of Mr. Meyers, which appears in the Cereal Courier 19(13): 234, July 31, 1927, while accurate is misleading. The corn investigations in Ohio, in so far as they relate to corn borer control, are now cooperative also with the U. S. Bureau of Entomology, and Mr. Meyers was transferred to that Bureau for administrative purposes.

W. J. Sando, associate agronomist in eastern wheat investigations, returned on August 4 from Pennsylvania where he took part in a study of the combined harvester-thresher conducted cooperatively by the Pennsylvania Agricultural Experiment Station and the Division of Farm Management and Costs, Bureau of Agricultural Economics, Division of Agricultural Engineering, of the Bureau of Public Roads, and the Office of Cereal Crops and Diseases, Bureau of Plant Industry.

Roy A. Weaver was appointed agent, effective August 1, in the cereal-disease investigations conducted at La Fayette, Ind., in cooperation with the Purdue University Agricultural Experiment Station. Mr. Weaver, who carries on field and laboratory research on seed corn, is paid half a year each by Purdue University and the Office of Cereal Crops and Diseases, in accordance with the cooperative arrangement.

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### MANUSCRIPTS AND PUBLICATIONS

51 A manuscript entitled "The Inheritance of Earliness and Other Agronomic Characters in Rice," by Jenkin W. Jones, was submitted August 3 for publication in the Journal of Agricultural Research.

The article entitled "A Comparison of Selections of Coast Barley," by V. H. Florell, appears in the Journal of the American Society of Agronomy 19(7): 660-674, fig. 1. July, 1927 (Cooperation between the Office of Cereal Crops and Diseases and the California Agricultural Experiment Station from 1923 to 1926; previously with the Office of Foreign Plant Introduction, Bureau of Plant Industry).

Department Circular 424 entitled "Further Studies on Flag Smut of Wheat," by W. H. Tisdale, C. E. Leighty, and Benjamin Koehler, was received from the Government Printing Office on August 10. (Cooperation with the Agricultural Experiment Station of the University of Illinois.)

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### TRIP INTO ALBERTA AND SASKATCHEWAN, CANADA

J. Allen Clark, agronomist in charge of western wheat investigations, makes the following report of a recent trip into Alberta and Saskatchewan, Canada, in which he was joined by G. W. Morgan, Superintendent of the Northern Montana Substation, at Havre, I. J. Jensen, Superintendent of the Judith Basin Substation, Moccasin, and B. B. Bayles, assistant agronomist in charge of cereal experiments at the Judith Basin Substation. The party started from Havre, Mont., on Sunday, July 24, in Mr. Morgan's automobile.

"We started west in Montana to Shelby and Browning. On the following day we first went through the Cardston dry-farming section, one of the most fertile of southern Alberta. Wheat here was in good condition, although 50 per cent had been seeded late and had not yet headed. Weed problems are extremely serious because of Canadian thistle and fan weed. Fallowing was used largely to control weeds.

"One of the oldest irrigation sections of Alberta is at Magrath. Here the fields were much cleaner than the dry-land section around Cardston. Even under irrigation, wheat was the predominating crop. There were smaller acreages of beets, alfalfa, and oats. The afternoon of July 25 was spent at the Experimental Station at Lethbridge, where cereal experiments are conducted both under irrigation and on dry land. Because of the favorable season none of the cereals had been irrigated so far this season. Winter wheat was badly winterkilled. Winterkilling, as the result of which the growing of winter wheat in Alberta has been lessened materially, is one of the big problems of the Experimental Station. It is considering the problems of tillage methods and the production of hardier varieties, which are necessary to restore winter-wheat production in that section. Kharkov is the standard winter wheat and Marquis the principal spring variety grown. The leading new varieties both of winter and spring wheat, of Canadian and United States origin, are under trial. Mr. H. J. Kemp, in charge of the cereal experiments, has invented a successful engine-driven nursery harvester.

"A rotation of alfalfa for a period of years followed by beets, barley, and wheat has proved to be a profitable and effective method of holding Canadian thistle in check. Considering the latitude, corn was very well advanced.

"We drove from Lethbridge to Swift Current on July 26. The first 50 miles from Lethbridge was through a very fertile irrigation section of largely diversified crops. To Bow Island the dry-land wheat was excellent, but eastward to Maple Creek there was a great deal of abandoned land. The production of winter rye increased toward Maple Creek, where it was the principal crop. Signs along the route stated that Maple Creek was the center of the corn belt, but we saw little or no corn. From Bow Island to Gull Lake most of the wheat grown was Red Bobs, which apparently was better adapted than Marquis on the lighter soils. Improved farming conditions were noted east of Gull Lake, where there was very little abandoned land.

"The morning of July 27 was spent on the Experimental Station at Swift Current. This is one of the new stations in Saskatchewan, having been established in 1922. Nearly all the experiments are with field crops and are very well planned. There are extensive varietal experiments with spring grains and many selections from the principal varieties in the nursery. Tillage methods are centered around the rotation ordinarily used in this section, namely, fallow and two years of wheat. They have extensive tests of methods of fallowing and of preparing stubble ground for crops.

"The afternoon of the 27th we drove from Swift Current to Saskatoon through a very fertile farming section exclusively devoted to Marquis spring wheat. Fully 90 per cent of the Marquis fields are mixed with the bearded, brown-glumed, long-beaked Ladoga variety and hybrids of these two and other varieties. Throughout this section rains had been heavy and wheat was tall and rank. Two-thirds of the crop was early sown and already headed. Much late wheat will be subject to loss by frost, drought, hail, and rust. We went through several hail areas.

"At Saskatoon we were shown both the Provincial Experiment Station and the Forestry Station at the University of Saskatchewan by Messrs. Champlin, Harrington, and Kirk. Extensive wheat breeding and varietal experiments were in charge of Dr. Harrington, emphasis being placed on breeding for resistance to stem rust. The first infection of rust was seen in fields at Saskatoon. There was a heavy infection in the breeding nursery, from which all infected plants were being removed as soon as they were found to be susceptible. Dr. Kirk has very extensive breeding experiments with sweet clover, alfalfa, and brome grass. Sweet clover hybrids were distinctly different in type from the white-flowered Arctic sweet clover parent and offered much promise. Some very excellent selfed strains of brome grass and alfalfa were being increased for commercial growing.

"An hour was spent at the Exposition at Saskatoon at which there was a very large attendance. It was impossible to obtain accommodations at hotels. The crop exhibits were extensive, and the livestock parade included a large number and variety of animals of very excellent quality.

"On the evening of July 28 we drove as far south as Elbow, through a country of Marquis wheat. We arrived at Moose Jaw at noon of the 29th, passing the Dominion Illustration Farm at Tugaskie. We drove east to Regina and south into Montana to Whitetail and Scobey. During the entire day many fields were examined for rust. Every field inspected was found to be infected with both stem rust and leaf rust. The heaviest infection of stem rust was between Moose Jaw and Ogema. At the latter point there was another Dominion Illustration Farm.

"Having lost some time because of bad roads, it was not possible to visit the Experimental Farm at Indian Head, as planned. On July 30 we traveled from Scobey to Havre, Mont. From Scobey southwest to Wolfe Point, crops were affected by drought and evidences of stem rust gradually disappeared. Spring grains along the Milk River Valley west from Glasgow were well developed; harvest had just started. We arrived at Havre at 10 p.m., July 30, in a heavy rainstorm, having traveled 1,543 miles."

J. Allen Clark



FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor) (July 20)

Threshing of the small grains from the field plats is done, but at least two weeks more will be required to finish the nursery threshing. Since the harvest, the weather has been unusually favorable, as there has been but little rain. In the so-called combine experiment, standing wheat, which on June 27 (the date on which it was "binder ripe") contained 40.4 per cent of moisture in the grain, contained approximately only 13 per cent during the period from July 5 to 7. However, since that period, the moisture content has varied from 14 to 24 per cent.

Yields of winter oats were excellent, considering the poor spring stands. Lodging was a big factor in the reduced yield of certain varieties, especially the Winter Turf selections. T. R. Stanton's selections again lead in yield.

Yield of winter-oat varieties or selections grown in single 40th-acre or 96th-acre plats in comparison to the check yield, at Arlington Experiment Farm, in 1927.

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield</u> (Bu. per acre)	<u>Yield check</u> plat. (Bu. per acre)	<u>Gain or loss</u> compared to check. (Bu. per acre)
Turf x Aurora	2281	88.8	58.0	+ 30.8
Fulghum (Sel.)	699- 202	64.8	51.3	+ 13.5
Fulghum (Sel.)	699-2015	67.5	60.8	+ 6.7
Fulghum (Sel.)	650-203	62.9	60.8	+ 2.1
Turf x Aurora	2286	59.4	58.0	+ 1.4
Turf x Aurora (plat 62)	---	56.1	55.2	+ .9
Hutcheson	947	55.4	55.2	+ .2
Red Rustproof 2306	---	54.8	55.7	- .9
Turf x Aurora	2280	54.3	58.0	- 3.7
Culberson (Hairy)	273-41	56.9	60.8	- 3.9
Red Rustproof 2499	---	48.9	55.7	- 6.8
Red Rustproof 2278	---	46.9	55.7	- 7.6

Continued

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield</u> <u>(Bu. per acre)</u>	<u>Yield check</u> <u>plat</u> <u>(Bu. per acre)</u>	<u>Gain or loss</u> <u>compared to</u> <u>check</u> <u>(Bu. per acre)</u>
Fulghum (Sel.)	699-2013	46.9	55.7	- 8.8
Fulghum (Aberdeen)	---	46.8	55.2	- 8.4
Ferguson	966	46.2	55.2	- 9.0
Dwarf Culberson	748	46.0	55.2	- 9.2
Turf x Aurora	2287	41.7	51.3	- 9.6
Black	691	47.6	60.8	- 13.2
Red Rustproof 2435	---	38.1	55.7	- 17.6

Average Yield of winter-oat varieties grown in triplicate 40th-acre plats in comparison to the average yield of the neighboring check plats at Arlington Experiment Farm, in 1927.

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield</u> <u>(Bu. per acre)</u>	<u>Yield check</u> <u>plat</u> <u>(Bu. per acre)</u>	<u>Gain or loss</u> <u>compared to</u> <u>check</u> <u>(Bu. per acre)</u>
Fulghum (Sel.)	699-2011	64.8	57.3	+ 7.5
Randolph	2275	63.3	57.3	+ 6.0
Jackson	2276	67.9	62.7	+ 5.2
Lee	2042	63.4	58.4	+ 5.0
Selection 1001 D1-2B	---	61.8	57.3	+ 4.5
Winter Turf	431	63.4	62.7	+ .7
Custis	2041	59.0	58.4	+ .6
Hatchett	838	57.6	57.3	+ .3
Winter Turf	541-4	58.3	58.4	- .1
Bicknell	206-155	58.7	60.2	- 1.5
Red Rustproof	1815	57.6	60.2	- 2.6
Culberson	273-I-14	56.3	60.2	- 3.9
Winter Turf	435-4	48.5	58.4	- 9.9
Fulghum	708	42.5	62.7	- 20.2
Kanota	839	40.3	62.7	- 22.4
Culberson 1/	273	59.6		

1/ Average yield of 14 check plats.

Arlington Experiment Farm, Rosslyn (Corn Breeding, F.D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke,  
Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H.H. McInney)



## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love) (July 29)

The weather during the recent days has been very favorable for harvesting. Our wheat is all harvested and we are now harvesting the rod rows of barley. For the most part the rod-row tests of winter wheat were very uniform, and we shall have some very worth-while results when the weights are taken. The yields will be very good and, we feel that the comparisons will be very accurate on account of the uniformity of the tests. The test of barley is much the same. It is very uniform and the yields as determined should show very accurately the relative merits of the different sorts that are under test.

The oats will not be ready to harvest before about the second week in August. The oat nursery, in which we have new hybrids, is now about ready for harvest and we have started harvesting some of the earlier sorts. Most of this material is grown for genetic purposes and a number of the characters are being noted and certain linkages studied. Further data on the linkage between the cultivated type of oat and the presence of ligules are being collected.

The harvesting of some of the plats out in various parts of the State is now under way and the inspection of wheat has been practically completed.

Some men are trying out the small combines for harvesting this year.

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, M. A. Smith)

# ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Currin) (July 31)

Second-survey activities are being carried on in Jo Daviess, Stephenson, McHenry, Lake, Kane, DuPage, LaSalle, Ogle, and Rock Island counties. Scouting is being carried on in the vicinity of old escaped areas and many barberries have been located. All the territory being surveyed is strip-scouted. Progress is slow, but the large number of bushes found has demonstrated that this is the only feasible plan to use. In strip-scouting, trees are marked with carpenters' chalk. This helps a great deal in making the survey more accurate.

A number of excellent photographs were taken during the month. John W. Weber, one of the agents, is a skilled photographer and he has taken a number of pictures which illustrate some of the barberry-eradication problems.

William R. Lewis, a prominent farmer living near Galena, in Jo Daviess County, has taken an active interest in barberry eradication. Last season and this year he has spent several days with the scouts looking for barberries on his farm. Mr. Lewis' farm is very hilly and wooded and he has found several bushes growing in out-of-the-way places. The services of such prominent farmers as Mr. Lewis help a lot to make the campaign a success.

Fresh, up-to-date stories are supplied every week by John L. Richardson to newspapers in all the counties that are being second surveyed. A number of cuts from the Conference for the Prevention of Grain Rust help to make the newspaper stories attractive and interesting. There is no question that newspaper publicity is one of the best methods to use in building up support for this campaign.

A series of attractive publicity panels has been prepared for use in counties where the campaign is in progress. Each panel features pictures relating to one problem of barberry eradication such as rust losses, the difficulty of finding seedlings in out-of-the-way places, common places to find barberry bushes, and similar problems. These panels are rotated among the squad leaders about every two weeks in order that each squad may have the use of all the panels in the series some time during the season. The squad leaders have been successful in getting the most prominent display

windows in all towns in which they have been located, and a great deal of helpful information has been gained from the use of this material.

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

#### OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

#### WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

#### MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, Chi Tu, Acting in Charge)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander) (August 1)

On July 1, an intensive farm-to-farm survey was resumed in McLeod and Sibley counties and started in LeSueur county. All three of these counties have more or less natural woodland, which includes many ravines and river valleys. As a result, the progress of the survey has been very slow. The first thing that was done in each of these counties was to make a stem-rust survey of at least 100 fields in each county. This was done on July 2. Another similar survey of the same fields was taken on July 8. The final rust survey will be made when the grain is ripe within the next few days. Those districts showing heavier rust will be platted on the map and saved



for further reference when the barberry survey reaches those districts.

The development of stem rust in the southern part of the State has been watched very closely. On July 7 and 8, a simultaneous survey was made by several persons, covering five trunk highways running east and west across the State. On this date, there seemed to be considerably more rust for the first 100 miles than there was beyond. At this time conditions did not look very promising for a good yield of plump wheat. A few days later, on going from Minneapolis to Litchfield, it was noted that wheat was ripening and getting ahead of the rust, but the next week the stem rust appeared to be holding the upper hand and has done considerable damage in the central part of Minnesota. The area where the most damage will occur in the southern half of Minnesota appears to be in a district in the eastern edge of Minnesota from St. Paul to Willmar and south through Blue Earth County. The inoculum seemed to be earlier in this district, however, and seemed to be spreading westward toward South Dakota, subsequently causing some damage out to the State border.

So far, we have found five stem-rust spreads to wheat. One was found by the barberry scouts in McLeod County, south of Brwnton. Marquis wheat was considerably more rusted near the barberries than it was farther away. One escaped planting of two bushes in Steele County was found by the amount of stem rust on winter wheat.

In addition, four stem-rust spreads have been found with the rye strain, two with the oats strain, and one to barley, the strain of which we do not know. Five cases of barberry spreading rust to wheat out of a total of eleven found so far is one of the highest proportions of the stem rust spreads from barberry we have found in several years.

Two plantings were found in Rice County by a high-school girl as a result of the school-lesson plans. One of these plantings consisted of two large purple bushes in Cannon City Township. It was obvious that these bushes had spread rust to the near-by fields of spring wheat, oats, and barley. They were in a location on a hill where inoculum could be spread for many miles around. The other location was in the city of Faribault. Quack grass was literally killed by rust near this bush. These two finds indicate the effectiveness of the school campaign.

#### GREAT PLAINS AREA (South to North)

##### OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (August 1)

The weather of the last half of July was wetter than usual. The rain has caused the sorghums and broomcorn to make rapid growth and it is now too wet to cultivate the plats. It begins to look as if some of the plats would be cultivated but once this season, as some soon will be too tall to cultivate with a straddle row cultivator.



Maximum temperature for last half of July, 106° on the 18th; minimum temperature, 61° on the 24th. Precipitation, 6.18 inches, or a total of 6.89 inches for the month of July. This is the highest July rainfall in the history of this station.

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren) (July 23)

There was no loss of winter wheat due to stem rust this year. This wheat has all been harvested.

Spring wheat is turning fast and will be ready to cut in a few days. There is only a sprinkle of rust present, which is not sufficient to cause damage. However, some of the late maturing spring wheat may be damaged somewhat.

Oats and barley have but little rust and should escape loss.

We have been finding many interesting problems in connection with the barberry survey. We have been walking over the whole irrigated area in Larimer County, covering all ditches and rivers. The country is rough and rugged and it is taking considerable time to cover an area. However, the results are very encouraging for foot survey. So far this month we have found over 100 small, medium and large escaped common barberries on the survey. All have been slightly infected and many have been found spreading stem rust to grasses and grain.

This shows the extreme importance of thorough survey.

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague) (August 1)

All harvesting is completed with the exception of a part of the date-of-seeding experiment with spring grains and a few odds and ends in the nursery. Threshing in the varietal plats would have been begun today (August 1) if rain had not prevented. We have been doing much corn selfing and crossing during the last 10 days.

Drought and hot winds in July will reduce the yields of the spring small grains very materially. Corn on the table land was beginning to suffer before today's rain. Corn on the bottom land was irrigated and did not suffer from the drought.

The precipitation recorded in July was much below normal. The precipitation recorded was 0.88 inch, while the normal is 2.68 inches. However, a good rain has been falling all this afternoon, (August 1). The maximum temperatures recorded in July were 96° and 94° on July 8th and 26th, respectively, while the minimum temperatures recorded were 53° and 54° on July 6 and 28.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayhue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (August 1)

July temperatures were somewhat below normal, the maximum being 90 degrees on the 27th, and the minimum, 39 degrees on the 2nd. There was a high percentage of clear days, however, when the effective growing temperature in the sunshine was higher than in some seasons having more cloudy weather and higher mean temperature in the shade.

A rainfall of 1.01 inches was recorded on the 16th, and 1.31 inches fell the evening of the 29th. The total for the month was 2.93 inches, which is slightly above normal. There is now enough moisture in the soil to permit cereal crops to fill out in good condition without more rain.

There is a good prospect for fairly high yields from all cereal crops. The growth of straw is only medium, due to dry weather prevailing the latter part of June and the first half of July. Corn, which had been very backward until the middle of July, is now growing rapidly, and is just beginning to tassel.

Early varieties of wheat, oats, and barley are beginning to ripen and a few varieties may be harvested the last of this week.

Notes have been taken on leaf rust in both plats and nursery showing more leaf rust than in any previous year for at least 10 years. Stem rust varies from a trace on resistant varieties to 10 per cent or more on susceptible varieties.

The annual Substation picnic was held on July 30 and was attended by about 500 people from various parts of the Slope region of the State. In the program of the afternoon, talks were made by H. B. Murphy, Chairman of the State Board of Administration, Director P. F. Trowbridge of the State Experiment Station, J. T. Sarvis, of the Great Plains Field Station at Mandan, and C. F. Monroe, Director of Extension for this State.

Official visitors from the U. S. Department of Agriculture in July were J. A. Clark, A. C. Dillman, T. R. Stanton, F. A. Coffman, and K. S. Quisenberry, of the Office of Cereal Crops and Diseases, and Dr. H. L. Westover of the Forage Crop Office.

On July 31 the Substation was visited by about 60 live-stock breeders and feeders from Ohio who have been making a tour of the West.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (August 3)

Crops have developed rapidly and well during the last half of July. Most of the flax in the varietal plats and nursery is practically through blooming. Some of the flax is beginning to ripen.

Conditions have been very favorable for attempting crosses between different species of *Linum*. The blooming periods of seven species, *Linum perenne*, *L. lewisii*, *L. rigidum*, *L. angustifolium*, *L. maritimum*, *L. grandiflorum*, and *L. usitatissimum*, have all overlapped to some extent. *L. perenne*, which began to bloom in May, still has a few blooms every day. Bolls have developed from some of the interspecific pollinations. Some of these are of small size, corresponding to that of bolls from flowers left unpollinated as checks. Others are larger, varying from half of normal to full normal size. It still is too early to determine whether the hybrid bolls contain seed.



The weather has been very mild during the last half of July. The average wind velocity was only 3.6 miles per hour. Temperatures generally have been moderately warm, Maximum temperature, 90° July 26; minimum, 46° July 28; precipitation, 0.64 inch.

Official visitors during the last half of July included: A. C. Dillman, H. L. Westover, R. W. Smith, T. R. Stanton, and K. S. Quisenberry.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausenius)

## MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles) (August 3)

The rainfall for July was 1.04 inches as compared with a 19-year average of 1.77 inches. The maximum temperatures for July were 90 degrees on the 26th and 86 degrees on the 19th. The minimum temperatures were 37 degrees on the 5th and 39 degrees on the 16th.

Spring wheat throughout the Judith Basin is very late and prospects for a good yield are poor. If we should get a good rain soon and the weather remains warm, spring grain may make fair yields. Winter wheat is in very good condition and promises a bumper crop. Binding probably will begin before the middle of the month, and the early fields should be ready for the combine by the 20th.

The winter-wheat nursery on the Substation, which was seeded very early last fall, will be ready to cut about the 8th, and promises some very high yields and a good quality of grain.

J. Allen Clark, Agronomist in charge of western wheat investigations, spent July 20 and 21 at the Substation. On the first of August he looked over the spring wheat on the cereal project. T. R. Stanton, agronomist in charge of oat investigations was here on the 29th and 30th. K. S. Quisenberry, associate agronomist in western wheat investigations, arrived at Moccasin on July 31 and expects to spend about three weeks helping with the wheat harvest on the cereal project. In the last week of July, Messrs. Gen. Morgan, J. Allen Clark, I. J. Jensen, and the writer traveled over 1,500 miles by automobile from Havre, Mont., to Canada.

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

## WESTERN BASIN AND COAST AREAS (North to West and South)

### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C.W. Hargerford)



## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, More (Cereal Agronomy, D. E. Stephens)  
(July 28)

Harvesting in eastern Oregon has been in progress for more than a week. Yields are a little lower in some sections of Sherman County than the farmers expected and a little higher in others. Turkey wheat in northern Sherman County is reported to be yielding from 20 to 35 bushels an acre, practically all of it grading hard winter and testing from 61 to 62 pounds per bushel. The owner of a fall-sown field of Federation in the Fulton Canyon section reported an average yield of 41 bushels an acre for a 240-acre field. Threshing has been in progress for only a few days around More and farmers think their fields are yielding in the neighborhood of 30 bushels an acre. Due to the plumpness of the grain and unevenness in ripening, losses from shattering have been much greater this year than usual.

All winter and spring grains on the Station are cut and we expect to start threshing tomorrow.

During the past ten days we have had the hottest weather of the season. The highest temperature recorded was 101 degrees on the 23d. There has been no precipitation this month. With continued favorable weather, most of the wheat fields in Sherman County will be harvested by the end of next week.

## CALIFORNIA

University Farm, Davis (Cereal Agronomy, V. H. Florell) (July 16)

A summer seeding of bulked hybrids was made on July 8. The wheat hybrids have emerged with fairly good stands but in the barleys the stand is poor. It is possible that they may emerge with better stands later. The temperatures have been high for the past week, with a maximum of 105° on Tuesday, July 12. The extremely warm weather is not particularly favorable for the germination of cereals, but wheat apparently is more tolerant than barley.

The threshing of the nursery cereals was completed on July 14. Next week the preparation of nursery seeds for fall sowing will begin. Average yields of grain in the plot experiments have been calculated. Yields of wheat, barley, and oats in the varietal plots, are presented in the following tables.

Individual plat and average acre yields of wheat grown in replicated fur 50th-acre plats at University Farm, Davis, Calif., in 1927.

## Wheat.

Variety	C.I. Calif.		Yield				Av.
	No.	No.	Bu. per Acre				
Pusa No. 4	---	---	64.2	48.8	59.0	65.1	59.3
Hard Federation X Prelude							
	1935 B6-2-5-3	---	62.6	58.1	57.9	57.8	59.1
Federation	4734	---	67.5	55.3	55.5	54.5	58.2
Hard Federation X Bunyip	---	B 537	66.0	53.4	55.7	57.1	58.1
Semra-Cedar	---	873	57.3	53.8	61.4	51.8	56.1
Hard Federation	4738	---	57.2	51.3	56.6	57.2	55.6
White Federation	4981	---	47.9	51.6	59.7	61.5	55.2
Hard Federation X Baart 1969							
	A1-16-10-2V	---	52.6	50.5	48.7	52.4	51.1
Cowra No. 37	---	---	44.7	48.7	52.3	49.8	48.9
Escudillo	---	---	46.1	45.8	50.3	44.5	46.7
Baart	1697	---	49.5	45.3	50.2	41.4	46.6
Alcalde	---	903	41.3	48.1	52.2	44.7	46.6
Thew X Cedar	---	---	42.3	38.6	45.6	47.5	44.0
Little Club X Fretes	---	1921 B	41.4	41.8	51.0	40.8	43.8
Hard Federation Sel.	6645	---	39.7	32.5	41.8	44.5	39.7
Little Club	4066	---	37.0	39.3	39.0	42.5	39.5
Pacific Bluestem	4067	---	39.2	29.8	43.8	39.0	38.0
Marquis	4158	---	41.3	32.8	---	---	a/37.1
Kharkov	1442	---	39.8	32.1	---	---	a/36.0
Semra	3036	---	48.5	42.9	---	---	a/45.7

a/ Average of two plats.

Individual plat and average acre yields of wheat grown in duplicated 50th-acre plats at University Farm, Davis, Calif., in 1927.

## Wheat Hybrids.

Variety	C.I.		Calif.	Yield		Av.
	No.	No.	No.	Bu.	per acre	
Hard Federation X Kanred	20154	H13-2-4-1		53.1	64.5	58.8
Baart X Hard Federation	1970	B1-16-1-2V		39.0	67.1	51.2
Hard Federation X Baart	1969	C1-16-5-3V		44.5	54.5	49.5
Hard Federation X Prelude	1985	A1-8-22-7-3		42.8	51.5	47.2
Hard Federation		4733	---	39.6	50.0	42.4
Hard Federation X Prelude	1985	B6-1-27-1		41.7	42.1	41.9
Baart		1697	---	42.0	30.8	36.4
Baart X Clarendon		---	---	51.7	---	---
Hard Federation X Klein Koren	1986	A1-1-3-1V	---	42.5	---	---

Individual plat and average acre yields of barley grown in replicated 50th-acre plats at University Farm, Davis, Calif., in 1927.

## Barley.

Variety	C.I. No.	Calif. No.	Yield (Bu. per A.)					Av.
			Ser. 1	Ser. 2	Ser. 3	Ser. 4	Ser. 5	
Vaughn	1367	---	92.3	81.3	84.0	89.0	84.6	86.2
Sacramento	---	1511	83.3	81.0	82.0	83.3	81.0	82.1
Atlas	4118	---	84.7	75.4	71.0	87.5	87.3	81.2
Herc	1286-1	---	73.3	72.1	57.5	67.8	73.1	68.8
Tennessee Winter	257	---	82.7	69.5	48.6	72.1	67.7	68.1
Club Mariout	261	---	64.7	68.6	59.6	77.5	66.6	67.4
Coast	690	---	66.8	67.1	61.7	68.8	71.4	67.2
Mechanical Mixture	4115	---	64.5	70.0				a/67.3
Two Row	1031	---	70.8	62.5				a/66.7
Composite Cross	4116	---	60.1	63.5				a/61.8

a/ Average of two plats.

Individual plat and average acre yields of oats grown in replicated 50th-acre plats at University Farm, Davis, Calif., in 1927.

Sunset	---	268	104.2	105.0	89.8	119.6	103.6	104.4
Kanota Kans. No. 5179	---	---	97.8	90.2	106.6	-	106.3	100.3
Fulghum	---	708	89.5	91.3	103.4	106.6	108.5	99.9
Cowra No. 35	---	---	93.3	89.0	94.2	103.4	117.0	99.4
California Red	---	1003	77.8	75.1	72.5	82.6	70.2	75.6

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (August 1)

Temperatures during July were favorable for the growth of rice. The average maximum temperature was 97.2 degrees, the average minimum, 59.7 degrees, and the mean temperature, 78.5 degrees F.

Many of the early maturing rices in the nursery are now heading and a few are fully headed and starting to ripen.

The Station nursery and varietal plats have made a fairly good growth this year. The yields will not be high, however.

The fertilizer and irrigation experiments, grown by continuous submergence, are not looking at all well. The rice has produced but few stools and is lacking in vigor. Water Plantain came up rather thick on many of these plats and it seems to have stunted the rice plants and prevented them from stooling. This is the first year we have been troubled

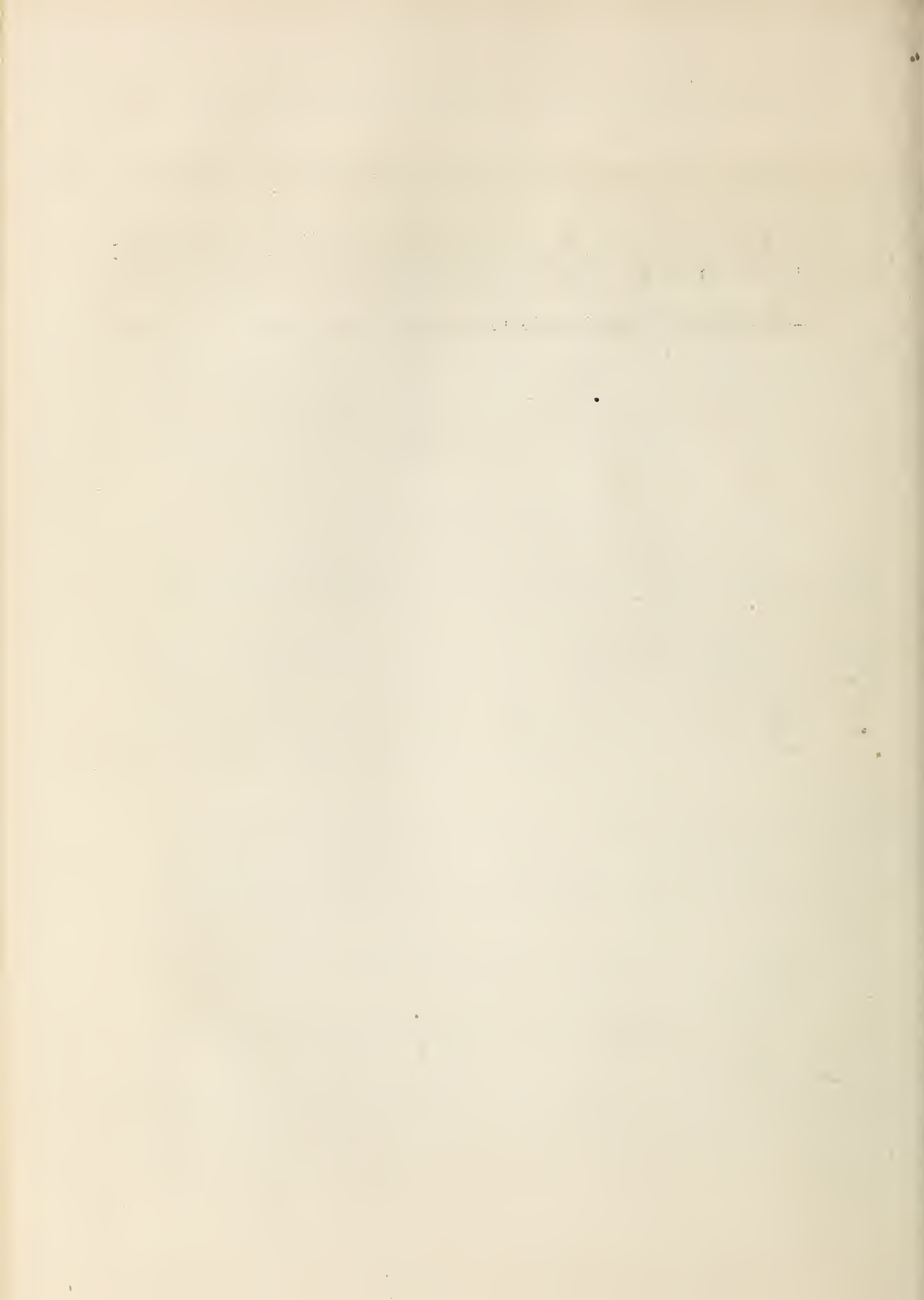


with this weed, and many rice growers in this vicinity have reported that it is quite thick in their rice for the first time this season.

Most of the commercial rice fields in Butte County look fairly well. Indications are that the harvest will begin at about the usual time, if the temperatures continue to be as high as normal during the next two months.

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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August 20, 1927  
Personnel (Aug. 11-20) and Field Station (Aug. 1-15) Issue

### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, expects to leave Washington in the near future for conferences with Station officials in various States on the corn-borer research program and for an inspection of some of the infested areas.

Charles E. Chambliss, agronomist in charge of rice investigations, left Washington on August 20 for Louisiana, Texas, Arkansas, Missouri, and Illinois. He will inspect rice experiments in Louisiana, Arkansas, Missouri, and Illinois and confer with experiment station officials in Louisiana, Arkansas, and Missouri. Mr. Chambliss also will confer with millers and manufacturers of rice products in Texas, Louisiana, and Pennsylvania. He will return to Washington about the middle of October.

J. Allen Clark, agronomist in charge of western wheat investigations, makes the following report written from Webster, S. Dak., Aug. 11, after a trip through Montana, North Dakota, and South Dakota.

At Havre, Moccasin, and Bozeman, Mont., the cooperative experiments with wheat were in excellent condition. Winter wheat was heavy and will yield from 35 bushels up. Much interest is shown by farmers in the new awnless Newturk winter wheat, which looked well at all stations. Supreme spring wheat also is popular and is becoming widely grown in Montana.



The spring wheat nursery at Havre was especially good and probably will yield more than any spring wheat ever grown on that Station. The best appearing strains are selections of Reliance and some of the Marquis x Hard Federation hybrids. One hundred selections from this cross are at the three Montana stations and most of them appear much better than either parent grown as checks. No leaf or stem rust was present in any of the Montana nurseries or the plats. There is much late seeded Marquis in the Judith Basin section which may rust later. The spring wheat nursery at Moccasin was not as good, although much larger than that at Havre and Bozeman. Plant growth at Bozeman was perfect and with abundance of moisture the absence of diseases or weeds may result in yields for spring wheat from 30 to 60 bushels per acre.

In North Dakota, heavy infection of both stem and leaf rust will cause much damage. From the Dickinson, Mandan, and Fargo nurseries valuable data are being obtained on rust resistance of new hybrid strains. There is more rust in the nursery at Mandan than at Fargo or Dickinson. Marquis carried 60 to 70 per cent rust at Mandan and about 25 per cent at Fargo. Rust notes were not recorded at Dickinson, as the wheat has a week to go before ripening, and additional rust will develop. The most promising new wheats for rust resistance are Hope, Kota x Marquis 1656.81, Marquillo, and Ceres. The Hope is a Marquis-emmer cross developed by E. S. McFadden at Webster, S. Dak., and has been practically immune to both leaf and stem rust and to bunt in all experiments I have seen. The 1656.81 selection, developed by L. R. Waldron at Fargo, N. Dak., is more resistant to stem rust than Kota, while Marquillo and Ceres are but slightly more susceptible. Marquillo was developed cooperatively at the Minnesota Agricultural Experiment Station and has been increased for commercial distribution this year. There are approximately 3,000 acres of Ceres wheat grown this year. I have seen several fields and all look good.

Severe losses will result from stem rust in Minnesota and in both North and South Dakota. Oats are hurt worse than wheat. From Fargo southwest to Aberdeen most of the oat fields are flat and but few of them will be cut. Marquis wheat is badly rusted, as are the susceptible durum varieties. From Edgeley, N. Dak., south to Redfield, S. Dak., and from Aberdeen east to here, less than five per cent of the wheat is Marquis. Those fields, and fields of susceptible durum varieties, are rusted and losses will vary from 20 to 80 per cent. Much of the wheat is Kota, Acme, and Pentad. There also are some fields of Nodak which are not rusted. Kota is but little rusted, although like other wheats has a poor stand, especially from Fargo, N. Dak., to Frederick, S. Dak. From Aberdeen, south and east most fields of Kota are heavy and some should yield as high as 35 bushels per acre. The presence of Kota and the resistant durum varieties has effectively checked the development of rust in certain sections and resulted in large savings to growers.

The development of rust-resistant varieties appears absolutely necessary for this section. A good start has been made with Kota, Nodak, Ceres, Marquillo, and Hope, all of which are now commercial, but additional and better varieties are necessary and should be developed for local conditions. It appears unlikely that a resistant variety will be developed which will have the wide adaptation that Marquis has had. The crossing of Hope with other resistant and with susceptible varieties is in progress at several stations and offers great promise. The resistance of Hope appears dominant in the  $F_1$ . Segregation in the  $F_2$  and  $F_3$  generations is much more definite for resistance and susceptibility, when Hope is used as a parent, than it was in the past when other resistant varieties were used. It remains to be determined if Hope is immune or resistant to all forms of stem and leaf rust in the field, and if its immunity or resistance is transmitted in hybrids in any definite genetic ratio.

Here at Webster, Mr. McFadden has a very interesting and valuable nursery on his farm. Marquis and Supreme are rusted 95 and 100 per cent, while Hope has not a trace of stem rust. Mr. McFadden has a number of crosses between Hope and related strains with Marquis, Supreme, and Kota-Webster selections, some of which are in the  $F_3$  generations. Selections from these crosses made under the conditions of such a severe epidemic, as is present at Webster, should be of great value.

Mr. Clark returned to Washington on August 16, having been in the field since June 1.

Dr. H. B. Humphrey, senior pathologist in charge of cereal rust investigations, left Washington on August 15 to make observations and take notes on the development and distribution of rusts of cereals, to collect specimens of rusts, and to confer with experiment station officials in New York, Minnesota, and Canada. He will return to Washington about the middle of September.

Dr. C. E. Leighty, agronomist in charge of eastern wheat investigations, returned on August 13 from Illinois where he was engaged during the period from July 8 to August 11 in a study of the operation of about 30 combined harvester-threshers and about 10 threshing machines. These studies, which were made in cooperation with the Illinois Agricultural Experiment Station by the Bureau of Agricultural Economics, Public Roads, and Plant Industry, of the U. S. Department of Agriculture, were begun at Greenville, Ill., and completed at Joliet, Ill.

In the central part of the State considerable wet weather was encountered. Conditions for harvesting became very bad before the end of the season. Considerable lodging occurred and weeds and grass grew up through the grain, making conditions very unfavorable for the operation of the combines. In the northern part of the State the harvest season was dry and most of the grain was harvested under ideal conditions. In these studies in Illinois a small threshing machine was transported on a trailer and this machine was used for rethreshing the straw passing through the combines and threshing machines in order to determine the losses. By means of this and other equipment very accurate data on losses were obtained.



There probably are over 300 combines in use in Illinois this year, and from observations made and the attitude of farmers regarding them, the number is likely to increase considerably next year.

R. W. Leukel, associate pathologist in charge of nematode investigations, will spend two or three days, beginning August 22, in the vicinity of Gaithersburg and Rockville, Md., to collect specimens of diseased material, locate regions of infestation, and visit grain elevators and mills.

Dr. E. R. Ranker, associate physiologist in corn smut investigations, returned to Washington on August 15 from an extended trip in the South and Southwest in the interests of corn-smut investigations.

F. D. Richey, agronomist in charge of corn investigations, will leave Washington on August 21 to inspect the cooperative corn experiments under way at Mandan and Dickinson, N. Dak., and Bozeman, Mont. He also will visit the University Farm at St. Paul, Minn., and the agricultural experiment station at Fargo, N. Dak.

From Minneapolis Mr. Richey will proceed to Ottawa, Ontario, from where he will go with Dr. G. P. McRostie, Dominion Agrostologist, Central Experiment Farm, Prof. R. A. Emerson, of the department of plant breeding of Cornell University, and Prof. L. C. Raymond, of Macdonald College, Ste. Anne, Quebec, to visit agricultural experiment stations in Quebec, Nova Scotia, and Prince Edward Island. Segregating generations from crosses between high-altitude South American corns and North American varieties are being grown at several points in this area in order to obtain information as to their behavior under relatively low temperatures.

From Canada Mr. Richey will proceed to Ohio to note the progress of cooperative corn experiments at Columbus, Wooster, and Bono, and from there to Ames, Iowa, before returning to Washington about October 1.

Percy W. Rohrbaugh was appointed State Leader of barberry eradication in Iowa to succeed Marion A. Smith, who has resigned effective August 10. Mr. Rohrbaugh has been connected with the barberry eradication campaign since 1922, having been a field agent, squad leader, and assistant State Leader in Nebraska. Mr. Rohrbaugh is a graduate of Nebraska Wesleyan College, having received his B. A. degree in botany from that institution in 1926. In the school year 1926-27 he was a half-time instructor in physiology at Iowa State College, Ames, and took work for an advanced degree at that institution.

Marion A. Smith, who has been State Leader of barberry eradication in Iowa since July 1, 1924, has resigned effective August 12. Mr. Smith has accepted a Crop Protection fellowship at the University of Illinois. He will conduct research on a problem relative to the use of colloidal sulphur in the control of fruit diseases. In addition, Mr. Smith will carry some regular college work looking toward a Ph. D. degree.

J. W. Taylor, associate agronomist in eastern wheat investigations, returned to Washington on August 18, having taken part for the past month in a study of the operation of the combined harvester-thresher in Illinois, Indiana, Ohio, Kentucky, and West Virginia. These studies of the operation of combines in middle western and eastern States are being conducted in cooperation with the State agricultural experiment stations by the Division of Farm Management and Costs of the Bureau of Agricultural Economics, the Division of Agricultural Engineering of the Bureau of Public Roads, and the Office of Cereal Crops and Diseases of the Bureau of Plant Industry.

Mr. Taylor will leave Washington on August 21 for New Haven and Storrs, Conn., Newark, Del., and New Brunswick, N. J., to consult with officials of the State agricultural experiment stations and to inspect agronomic experiments.

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MANUSCRIPTS AND PUBLICATIONS

52 A manuscript entitled "A Cytological Study of Puccinia glumarum on Bromus marginatus and Triticum vulgare," by Ruth F. Allen, was submitted on August 20 for publication in the Journal of Agricultural Research.

53 A manuscript entitled "Downy Mildew, Sclerospora graminicola, on Everglade Millet in Florida," by Wm. H. Weston, Jr. and G. F. Weber, was submitted on August 20 for publication in the Journal of Agricultural Research.

Galley proof of Technical Bulletin 14 entitled "Cereal Experiments at The Fort Hays Branch Station, Hays, Kansas, 1912-1923," by Arthur F. Swanson, was read August 19.

Page proof of Technical Bulletin 10 entitled "The Productiveness of Corn as Influenced by the Mosaic Disease," by Hugo F. Stoneberg, was read August 12.

The article entitled "Factors Affecting Certain Properties of a Mosaic Virus," by H. H. McKinney, appears in the Journal of Agricultural Research 35 (1): 1-12. July 1, 1927. (Cooperative investigations between the agricultural experiment station of the University of Wisconsin and the Office of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

The article entitled "Quantitative and Purification Methods in Virus Studies," by H. H. McKinney, appears in the Journal of Agricultural Research 35 (1): 13-38, figs. 1-5. July 1, 1927. (The studies reported were made by the Office of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, in cooperation with the Wisconsin Agricultural Experiment Station.)

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FIELD STATION CONDITION AND PROGRESS

HUMID ATLANTIC COAST STATES (South to North)

GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

HUMID MISSISSIPPI VALLEY STATES (South to North)

LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, P. A. Rohrbaugh)

#### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

#### OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

#### WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

#### MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, Chitu, Acting in Charge)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

### OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (August 15)

On August 8 and 9 the broomcorn and grain sorghum project was cultivated for the second and last time this season. Toward the last of July and in the first week of August it looked doubtful if the plats would get the second cultivation but even the taller plants were cultivated without breaking to any extent.

Sorghums and broomcorn are making rapid growth and many varieties are heading at present. The wet weather has interfered with bagging seed heads, but it is hoped that conditions will change so that bagged seed may be obtained.

Several of the dwarf hybrid feteritas are heading earlier than regular feterita and are dwarf as expected. A season such as the present one is not favorable for selecting the varieties best suited for normal or dry years. Selection can be made for dwarf and straight neck characters.

Maximum temperature for the first half of August, 96 degrees on the 12th and 14th; minimum temperature, 59 degrees on the 4th; precipitation, which occurred on six days, amounted to 2.41 inches. It is raining again today.

### KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson) (August 16)



The precipitation for the first 16 days of August amounted to 4.76 inches, or about twice the normal rainfall for the month. There now are heavy floods in parts of central and western Kansas. At the present time thousands of acres of land are under water west from Salina. Fifty to sixty miles east of Hays heavy rains have caused much damage. While there has been excessive precipitation at Hays, no damage has occurred. The ground is thoroughly soaked, however, for next year's crop.

The rain has caused some delay in the preparation of land for wheat. All row crops are in excellent condition. Northwestern Kansas, which was drought-stricken last year, will produce a large crop of corn. Much of the corn is well passed the roasting ear stage.

The following yields of winter wheat were obtained on the cereal project this year. These yields are the average of four replicated plats.

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield</u> <u>(Bu. per Acre)</u>
Hussar	4843	13.3
Sherman	4430	12.2
Kharkof, Mont. No. 36	5549	11.9
Kharkof, Hays No. 2	6686	11.6
P-1068 x Preston, Kans. 444	----	11.2
Kharkof	1442	9.9
Superhard	8054	9.8
Tenmarq	6936	9.7
Nebraska No. 60	6250	9.6
Altara	5797	9.6
Kanred	5146	9.5
Turkey	1558	9.3
Nebraska No. 28	5147	9.1
Newturk	6935	8.8
Blackhull	6251	8.4
Nebraska No. 6	6249	8.2
Preston x P-1068, Kans. 446	8027	8.0
Fulcaster	6471	7.9
Improved Turkey	5592	7.8
Regal	7364	7.3
Minturki	6155	6.1
Harvest Queen	6199	4.4

Winter wheat in the Hays section was damaged as the result of excessive growth in April owing to plentiful surface moisture followed by a severe drought in May and unusually high winds for a 3-day period. The lack of stored moisture, as a consequence of the drought in 1926, probably was the chief reason for a poor crop of wheat.

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (August 15)

Harvesting of the cereal varieties at the Substation began August 6 with the early varieties of oats and barley in the nursery. Since that time the barley nursery has been harvested and about half of the oats in rod rows. In the quadruplicated plats nearly all varieties of oats and barley and seven of the earlier varieties of spring wheat have been harvested. Winter wheat and rye, which usually are ripe before the spring-sown grain, are not yet fully ripe. Most of the rye heads were destroyed by the hailstorm of June 19. A second growth then headed out and will make a fair crop. Winter wheat and spring grain were not headed at the time of the hailstorm and escaped severe injury, although they were bruised enough to delay heading.

Harvest is now becoming general in Stark County. One or two combines are operating in the locality, and some rye harvested with the combine already has been marketed here.

Crop prospects are good in this county and throughout the State, according to reports. Considerable stem rust is present, Marquis wheat in this vicinity averaging about 30 to 40 per cent of rust. Early fields may not be greatly injured, but it is probable that much of the wheat will be injured in quality and yield. This is especially true in the areas where hail injury was most severe. The injury from stem rust in this locality, in both wheat and oats, probably will be greater than in any previous year since 1916.

The mean temperature so far this month has been comparatively cool due to cool nights, although most of the days have been sunny with rather hot afternoons reaching a maximum of about 88 on a few days.

Official visitors at the Substation this month were J. Allen Clark, O. S. Aamodt, and J. C. Brinsmade, Jr.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Aulsebrook) (August 16)

Harvesting of the cereal crops in the varietal plats and nursery is more than half completed. Harvesting of the remaining material has been delayed by rains since August 14.

A very severe infection of stem rust has developed on wheat and oats. However, most of the wheat and oats were matured enough to escape serious damage, except in the later seeded fields.

The maximum temperature for the first half of the month was 92 degrees on August 5; minimum, 45 degrees on August 7. The precipitation for the month to date was 2.06 inches, 1.69 inches of which fell on the 14th and 15th.

Visitors at the Station since July 18 were J. Allen Clark, of the Office of Cereal Crops and Diseases; O. S. Aamodt and R. U. Cotter, University Farm, St. Paul, Minn.; L. J. Boyle, Fargo, N. Dak.; R. S. Towle, Superintendent of the Sheridan (Wyoming) Experiment Farm; A. L. Nelson, Superintendent of the Cheyenne (Wyoming) Experiment Farm; and Dr. Victor Talanoff, Chief of the Plant Introduction and Variety-Testing of Institute of Applied Botany, U. S. S. R., of Leningrad, Russia, and his daughter and assistant, Miss Valentine Talanoff.

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham) (August 15)



During the period from August 3 to 10, black stem rust was found more prevalent in eastern Montana than in any year since 1923. The earliest appearance of the rust was later than a year ago, but the late spring, and the additional moisture during the summer, delayed the maturing of spring wheat from two to three weeks. On August 4 and 5, spring wheat in Rosebud County and farther east was found generally infected, but, with the exception of an occasional field, matured beyond danger of loss from rust.

No stem rust was found in Musselshell, Fergus, Judith Basin, and Cascade counties on August 8 and 9. Spring wheat is extremely late there, the larger part being only in the milk. A few fields were noticed in which wheat was just heading. Spring wheat in Gallatin Valley also is later than usual; only a few fields have begun to ripen.

The weather in this area for the past week has been cool and rainy, which will tend to delay further the maturing of the grain.

#### WESTERN BASIN AND COAST AREAS (North to West and South)

##### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

##### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

##### OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(August 6)

Threshing has been in progress on the Station since July 29. The outside nurseries have been threshed, but the grain has not been recleaned and weighed.

In an experiment to determine the value of the furrow drill for sowing winter wheat the following results were obtained this year:

<u>Variety</u>	<u>Drill</u>	<u>Rate of sowing</u>	<u>Acre yield</u> (Bu.)
Federation	Hoe	4-1/2 pecks	44.5
C. I. No. 473	Furrow	61 lbs.	46.9
Oro	Hoe	4 pecks	41.4
C. I. No. 8220	Double-disk	61 lbs.	42.5
	Furrow	61 lbs.	43.4

Two 10th-acre plats of Federation and Oro were sown with each drill at each rate. The hoe drill was a superior 7-inch drill. The disk drill was a double-disk 6-inch drill, with furrow attachment for seeding in furrows 12 inches apart.

The results were not quite what we expected from observation, as the Oro variety sown with the furrow drill headed four days later than that sown with the hoe drill, and two days later than that sown with the disk drill. The Federation wheat sown with the furrow drill was only one day later in heading.

The winter wheats in the varietal experiment produced from 28 to 44.8 bushels per acre. The lowest yielding variety was Fortyfold, and the highest White Odessa. The following were the five highest yielding varieties:

<u>Variety</u>	<u>Yield (Bu. per acre)</u>
White Odessa	44.8
Federation	42.7
Hybrid 128	42.6
Argentine 1569-2	40.7
Oro	39.4

A complete list of the varieties with yields of each series and averages will be sent in soon.

#### CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

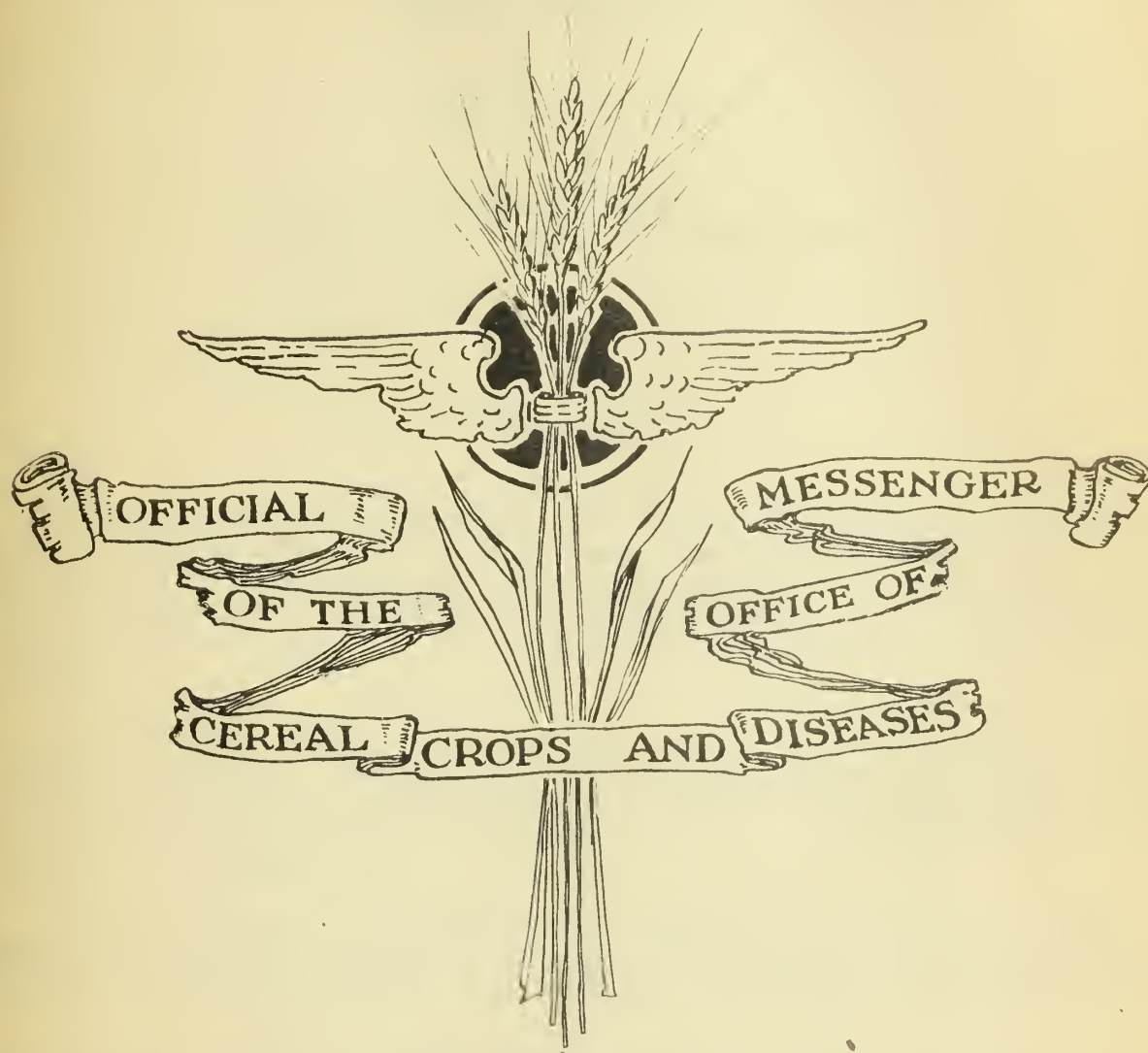
University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE





## C E R E A L   C O U R I E R

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Bureau of Plant Industry, U. S. Department of Agriculture  
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No. 21

August 31, 1927  
Personnel (Aug. 21-31) and Project Issue

### P E R S O N N E L   I T E M S

Dr. C. R. Ball, senior agronomist in charge, left Washington on August 27 to attend a joint meeting of the corn-borer committees at Toledo, Ohio. He also expected to inspect results of research and control activities and to consult with officials of agricultural experiment stations and others regarding the corn-borer campaign in Ohio, Indiana, Michigan, New York, and at Chatham, Ontario.

A. C. Dillman, associate agronomist in charge of seed flax investigations, returned to Washington on August 19 after about two months in the field. Most of the time was spent at University Farm, St. Paul, Minn. Mr. Dillman also visited the experiment stations at Fargo, Mandan, and Dickinson, N. Dak., Bozeman, Mont., and Madison, Wis.

Rather extensive flax classification nurseries were grown at St. Paul, Mandan, and Bozeman. Growing conditions were favorable at each of these stations and satisfactory material was obtained for the study of plant characters.

At Bozeman, where the flax varieties were sown early, they promised unusually large yields. Many of the 17-foot rows would certainly yield at the rate of 30 to 40 bushels per acre. Several fields of mixed flax and wheat grown by farmers near Bozeman were seen and some of these fields promised very satisfactory yields. Other fields were rather weedy and good yields could not be expected.

Growing conditions on the whole were rather favorable for the flax crop throughout western North Dakota and eastern Montana, and yields above the average were expected in this area.

At St. Paul, Mr. Dillman continued his study of the daily growth of the flax seed with special reference to the time at which the oil is laid down, and also took notes on the several hundred varieties and strains of seed flax in connection with the classification of flax varieties.

Flax rust appeared to be unusually severe in Minnesota this season, and wilt also was destructive where resistant varieties were not grown. Flax wilt now can be entirely controlled by the use of wilt resistant varieties in connection with early seeding, but breeding and selection for rust resistance has been somewhat neglected until recently. At University Farm, however, Dr. E. C. Stakman has a very extensive breeding nursery in the third and fourth generations, where selection for rust resistant varieties is the prime object. The crosses were mostly between common flax and varieties of the Argentine type which are immune to rust in this country. The crosses were made about two or three years ago by Dr. A. W. Henry, in cooperative investigations between the University of Minnesota and the Office of Cereal Crops and Diseases and the Office of Fiber Plants, of the Bureau of Plant Industry.

Dr. H. V. Harlan, senior agronomist in charge of barley investigations, returned to Washington on August 23 from Aberdeen, Idaho, where he had been engaged in studying and taking notes on the cooperative barley nursery at the Aberdeen Substation.

Lynn D. Hutton, associate pathologist in barberry eradication, will leave Washington on September 6 to supervise and inspect operations of the barberry eradication campaign in the 13 States in cooperation with whom barberry eradication is being conducted. He will confer with collaborators and cooperators in making plans for a winter conference and survey procedure for 1928.

R. W. Leukel, associate pathologist in charge of nematode investigations, left Washington on August 31 for a four-day trip in Virginia to visit mills and elevators in the wheat-nematode-infected districts in the vicinity of Riverton, Front Royal, and Strasburg and in the Shenandoah Valley as far south as Harrisonburg. He will collect samples of wheat infested with nematodes for field inoculation experiments and determine the present prevalence of the disease.

Miss Mary L. Martini, assistant botanist in barley investigations, returned to Washington August 31 after spending the summer in studies of barley varieties and hybrids in the cooperative barley nurseries at Sacaton, Ariz., and Aberdeen, Idaho.

M. A. McCall, agronomist in charge of cereal agronomy investigations, left Washington on August 31 for Madison, Wis., to inspect cooperative experiments and to collect material for physiological studies of wheat. He will return about September 9.

K. S. Quisenberry, associate agronomist in western wheat investigations, wrote on August 23 that all the winter wheat on the Judith Basin Substation had been cut and that most of the nursery and all of the plats had been seeded on August 20 and 22. As none of the wheat plats had been threshed, old seed was used in most cases. Most of the nursery and plats of oats and barley had been cut and a few plats of oats threshed. Not a bit of spring wheat had been cut as yet, and it was not ripening very fast. The late rains had helped spring wheats considerably.

Very little harvesting had been done in the vicinity of Moccasin. It was thought that winter wheat might be in condition to "combine" before the end of the week. Only one field of spring wheat was seen that had started to turn. The weather was so damp and cool and cloudy that grain was ripening very slowly and the danger of frost was becoming imminent.

Mr. Quisenberry expected to arrive at Bozeman on August 23 to remain for a week. He expected to reach Dickinson, N. Dak., by August 29.

Dr. E. R. Ranker, associate physiologist in corn smut investigations, will leave Washington about September 2 to make field studies of corn smut in Maryland, New Jersey, Connecticut, Rhode Island, Massachusetts, New Hampshire, Vermont, Maine, New York, Pennsylvania, and West Virginia. He will return to Washington about September 16.

The following employees of the Office have been authorized to go to Columbus, Bono, and Wooster, Ohio, from September 12 to 16 to study the cooperative corn experiments, especially with reference to the control of the European corn borer, and to observe the effects of corn-borer infestation on corn production:

Dr. A. M. Brunson, associate agronomist in the cooperative corn investigations at Manhattan, Kans.

A. A. Bryan, assistant agronomist and M. T. Jenkins, assistant agronomist in the cooperative corn investigations at Ames, Iowa.

H. F. Stoneberg, assistant agronomist in the cooperative corn investigations at Baton Rouge, La.

L. S. Mayer, assistant agronomist in the cooperative corn investigations at Knoxville, Tenn.

C. H. Kyle, agronomist, and H. S. Garrison, assistant agronomist, in corn investigations, Washington, D. C.

They also will visit the corn-borer laboratory of the U. S. Bureau of Entomology at Monroe, Mich., and the Dominion Entomological Laboratory at Chatham, Ontario.

## VISITORS

C. W. Bishop, of the Freer Gallery of Art, Washington, D. C., who has been obliged to relinquish archeological studies in China because of disturbed conditions, was in the Office on August 24 to get data on the origin of rice and the history of rice culture.

Dr. W. H. Tisdale, of the E. I. du Pont de Nemours Company, Wilmington, Del., was in Washington on August 25 and 26 for conferences with officials of the Office regarding investigations of the stinking smut of wheat and its control.

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REPORT OF PROGRESS IN BARBERRY ERADICATION FOR THE  
FISCAL YEAR ENDED JUNE 30, 1927

By F. E. Kempton, Associate Pathologist in Charge,  
and  
Lynn D. Hutton, Associate Pathologist

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Introduction

During the past fiscal year more than 2,000,000 barberry bushes, seedlings, and sprouting bushes were destroyed in the barberry-eradication campaign. Since systematic efforts at barberry eradication were undertaken in April, 1918, 14,391,314 common barberry plants have been destroyed. Losses to wheat from stem rust have shown a material reduction as evidenced by the decrease in the average annual losses from this disease and the absence of widespread severe epidemics, and it is thought that barberry eradication has had its part in the result.

Comparing the estimated total losses from stem rust of the four grain crops, wheat, oats, barley, and rye, for the two 6-year periods, 1915 to 1920, and 1921 to 1926, inclusive, a material reduction is seen in the 13 States of the eradication area. The average annual loss from stem rust for the first 6-year period was 58,677,000 bushels of grain, while the average annual loss for the second 6-year period was 37,746,500 bushels. This difference is 20,930,500 bushels. It is significant that the barberry-eradication campaign was begun in 1918. Previous to December 31, 1920, only 4,292,697 common barberry bushes had been found and destroyed, but by December 31, 1926, more than 14,361,098 bushes had been killed.

The decrease in grain losses in many local areas has been much greater than the general reduction would indicate. Positive control of local epidemics of stem rust has followed the removal of all harmful barberries from many communities in the eastern States of the eradication area. In other areas the reduction has been less marked. However, a material reduction of the stem-rust losses from destructive epidemics in the spring-wheat States has followed the eradication of common barberries.

MANUSCRIPTS AND PUBLICATIONS

Galley proof of article entitled "Morphological and Cytological Studies of an Oat from Ethiopia," by T. R. Stanton and E. Dorsey, was read August 27.

Research Bulletin 42 of the Nebraska Agricultural Experiment Station entitled "Stem Rust in Nebraska," by George L. Peltier and A. F. Thiel, dated July, 1927, has been received. (The investigations on which the data in this bulletin are based were conducted cooperatively by the Office of Cereal Crops and Diseases, Bureau of Plant Industry, and the Nebraska Agricultural Experiment Station.

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During the past year local outbreaks of stem rust in many cases have been traced to barberries growing in near-by fence rows, groves, or thickets bordering grainfields. The inoculum for more widespread epidemics and the light scattering of stem rust, which often are found at harvest time over large areas, can not be traced to definite sources. It is known that common barberries scattered here and there over the entire area become infected early in the season and then scatter rust to near-by grains and grasses. No doubt these bushes are the source of much inoculum. Late in April of 1927 infection of barberries was reported from Missouri, Iowa, Minnesota, Wisconsin, Illinois, Michigan, and Ohio. Even a little inoculum spread to fields of grain early in the season may later cause an epidemic where proper conditions develop for the growth of stem rust.

Another source of inoculum may be the stem rust that develops early in southern grain-growing States. This latter inoculum, under certain conditions, may spread widely by winds to wheat-producing States farther north. Some rust developed in Texas late in March and by early May could be found in most fields from San Antonio to the northern border of the State. This rust in Texas might serve as a source of inoculum for a northern epidemic, but the more than 2,000,000 barberry bushes, sprouting bushes, and seedlings so far found during 1927 in the 13 eradication States are an equally probable source. In addition to the known 2,000,000 bushes there are many bushes and seedlings scattered here and there over the counties not yet reached by second survey, as well as some overlooked bushes and some seedlings even in second-surveyed areas.

The first survey has reached approximately 369 counties of the 920 counties it is necessary to cover by this survey. Approximately 214 counties have been covered by the second survey. Resurveys in all this area are necessary to eliminate sprouting bushes and seedlings from properties where bushes were eradicated in the other surveys.

### Cooperation

In conducting the barberry-eradication campaign the Office of Cereal Crops and Diseases, of the Bureau of Plant Industry, U. S. Department of Agriculture, cooperates with the State agricultural colleges of Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Cooperation also is had with the State Department of Agriculture of most of these 13 States. The Office of Horticulture, Bureau of Plant Industry, cooperates in growing a collection of Berberis at Bell, Maryland, and in the study and classification of barberry species, varieties, and hybrids that are grown or are likely to be grown in the United States. The Conference for the Prevention of Grain Rust, of Minneapolis, cooperates by furnishing funds and personnel for publicity and educational activities. It also establishes contacts with commercial, agricultural, scientific, and State organizations. Collaborators, agents, and cooperators from the agricultural colleges and extension divisions aid in the campaign.



County agricultural agents and club leaders, business and local farm organizations, State, county, and township weed-control officials, State and county crop reporters, State, county, township, and city civil officials, and many others aid and support the campaign in various ways.

State and county superintendents of public instruction, professors and instructors in universities, colleges, and normal schools, supervisors and teachers in rural and grade schools and vocational and high schools, both public and private, aid in teaching the story of stem-rust control by barberry eradication. Thousands of farmers and other property owners whose properties are inspected for barberries usually give whole-heartedly of their time and support to the campaign.

### Organization

The campaign is directed by national leaders in the Office of Cereal Crops and Diseases. State Leaders with assistants, clerical help, and a corps of field agents in each State carry forward educational and publicity phases, make surveys of properties and eradicate bushes, sprouts, and seedlings. These State Leaders also aid in some investigational phases and make observations on the prevalence and spread of stem rust. The organization and personnel of the campaign on July 1, 1927, appears at the end of this article.

### Funds

The barberry-eradication campaign was inaugurated with funds from the appropriation for "Stimulating Agriculture," in April, 1918. The first regular appropriation was furnished for the fiscal year beginning July 1, 1918. Federal funds allotted to the campaign from April 1, 1918, to June 30, 1927, total \$2,567,715. Annual appropriations with the approximate distribution to States and general service are presented in Table 1.

The States and other cooperating agencies have contributed for the same period in service and cash, an amount estimated as totaling \$652,887. The estimated amounts by States and agencies are presented in Table 2. The total of Federal and State allotments amounts to \$3,220,602.

In addition, property owners and others interested have contributed much in time, labor, chemicals and eradication, and funds of which no estimate has been furnished.

The appropriation for the fiscal year ended June 30, 1926, was \$375,000 (See Table 1). In the same period, State and other interested agencies contributed in cash and services the equivalent of \$88,197 (See Table 2).



## Investigations

### Stem-rust epidemiology studies

The members of the barberry-eradication force cooperate closely with the investigators carrying forward the stem-rust epidemiology studies which are supervised from field headquarters at University Farm, St. Paul, Minn.

The State Leaders and their agents make observations on the early appearance of stem rust on barberries, its subsequent spread to near-by grains and grasses, and the later appearance and spread of the red stage of the rust on grains and grasses. These field men also make estimates of the prevalence and severity of stem rust at harvest time and collect and furnish estimates for the losses from stem rust. Typical cases of the spread of stem rust from infected barberries to near-by grains and grasses are studied and mapped. Reports of severe local outbreaks of stem rust are investigated and through them many scattered barberry bushes and seedlings are located.

Losses in wheat caused by stem rust in the crop season of 1926 were comparatively small. The losses as estimated for the 13 States of the eradication area totaled 4,622,000 bushels of wheat.

An unusual feature was the development of a widespread and destructive epidemic of stem rust on oats. The loss of oats was estimated at 68,300,000 bushels for the 13 States of the eradication area. The stem rust loss in barley in these States was only 247,000 bushels while there was only a trace of stem rust on rye.

During the spring and early summer of 1927 stem rust was reported on barberries in late April and early May from the States of Ohio, Missouri, Michigan, Nebraska, Illinois, Iowa, Minnesota, Wisconsin, Indiana, Kansas, and Kentucky. Slightly later in May infections were reported from Maryland, Indiana, South Dakota, and Wisconsin.

The spring was cold and wet in most of the barberry-eradication area. Even with the reports of rather early rust infection, stem rust developed very slowly, and comparatively little infection was found on barberry bushes in some sections. In other sections, even where bushes were generally and rather heavily rusted, very little spread of rust from the barberries was reported. This probably explains the relatively light infection of wheat, oats, barley, and rye in the 13 barberry-eradication States in late June.

Up to July 1 there was no more than a trace of stem rust on grains in Nebraska, North and South Dakota, and Minnesota. There were evidences, however, of local infections in southern Minnesota, Wisconsin, Michigan, Ohio, northern Illinois, and northern Indiana. Weather conditions during the last week of June, including wind, temperature and moisture, were favorable to the development and spread of stem rust. What may develop in the way of rust damage after June 30 cannot be foretold at this time and is dependent entirely on seasonal conditions.

#### Publicity and Educational Activities

The publicity activities pertaining to barberry eradication include news articles, circulars and personal letters, demonstrations and exhibits, radio talks, speeches at public meetings, and the preparation of bulletins and circulars.

News articles for the most part consist of timely stories to newspapers of State and local circulation. Articles of wider interest are released through national and sectional channels.

Circular letters or cards especially designed for the purpose are sent to farmers and other property owners in the area where intensive survey is in progress. This literature introduces the field men and gives information about the campaign. A more personal type of letter, usually accompanied by bulletins and circulars, is sent to extension workers, legislators, weed inspectors, leading farmers, bankers, grain dealers, and other business men. These letters supply these representative citizens with up-to-date information about the progress of the work which they disseminate in their local areas.

Demonstrations and exhibits consisting of field demonstrations, special evening demonstrations on street corners and at gatherings of farmers and townspeople, window displays, and fair exhibits are used regularly. The field demonstrations are arranged wherever the spread of stem rust to grain can be definitely shown. Large hedges of barberries and areas of barberries scattered to woodlands also are used to instruct the people of the community to recognize this shrub and enlist their cooperation in its destruction.

Bulletins and circulars are distributed both from Washington and the State offices to special mailing lists. The field men also distribute this literature to property owners as the survey proceeds. Such publications supply the detailed information it is not possible to give in short interviews and news articles. Both Federal and State bulletins are supplied.

Speakers are furnished to meetings of agricultural workers, farmers, commercial groups, and teachers, and to schools. The contacts made through these talks and meetings are especially valuable in answering local questions about the campaign.

The educational phases of the campaign consist of the more direct instruction of individuals regarding the story of stem rust and the common barberry. State and county superintendents of public instruction and teachers in grain-growing areas are showing special interest. Efforts are being made to have the story of black stem rust made a part of the regular course of study in so far as practicable. Study material, consisting of lesson plans, bulletins, circulars, colored charts, and specimens of rusted barberries and grain, is supplied.

The Conference for the Prevention of Grain Rust has aided materially in supplying educational ideas and demonstration material. Especially valuable are the contacts, actual support, and encouragement so freely furnished.

A list of publications pertaining to the barberry eradication campaign, issued during the period, July 1, 1926, to June 30, 1927, follows:

Durrell, L. W., and E. A. Lungren. Barberry eradication and sources of black stem rust in Colorado. Colo. Agr. Expt. Sta. Bul. 315: 3-18, figs. 1-10. January, 1927. (Cooperation between Office of Cereal Crops and Diseases and the Colorado Agricultural College.)

Kempton, F. E., and L. D. Hutton. Barberry eradication in wheat areas. U. S. Dept. Agr. Yearbook 1926: 153-162, fig. 15, 1927.

Kempton, F. E., and Lynn D. Hutton. Report of progress in barberry eradication for the fiscal year ended June 30, 1926. U. S. Dept. Agr., Bur. Plant Indus., Office of Cereal Crops and Diseases Cereal Courier 18 (no. 18): 185-209. July 31, 1926. (Mimeographed)

Leer, Wayne E. Kill the common barberry. Purdue Univ. Ext. Bul. 145: 1-12, figs. 1-10. August, 1926. (Cooperation between Office of Cereal Crops and Diseases and the Extension Service of the Purdue University Agricultural Experiment Station.)

Lungren, E. A. Report of the barberry eradication campaign in Colorado. Colo. State Ent. Circ. 51: 79-82. June, 1926. (Seventeenth Annual Report, for 1925.) (Cooperation between Office of Cereal Crops and Diseases and Office of the State Entomologist and the Colorado Agricultural College.)

Mayoue, George C. Barberry eradication in North Dakota. North Dakota Agr. Col. Ext. Div. Circ. 73: 2-16, figs. 1-7. September, 1926. (Cooperation between North Dakota Agricultural College Extension Division and Office of Cereal Crops and Diseases.)



Melander, Leonard W., and J. H. Craigie. Nature of resistance of *Berberis* spp. to *Puccinia graminis*. *Phytopath.* 17 (2): 95-114, figs. 1-4. February, 1927. (Cooperation between Office of Cereal Crops and Diseases and the Section of Plant Pathology, Department of Agriculture, University of Minnesota.)

Morris, H. E., and W. L. Popham. Montana's barberry campaign. *Mont. Agr. Exp. Sta. Bul.* 196: 3-24, pl. 1 (col.), figs. 1-7. December, 1926. (Cooperation between Office of Cereal Crops and Diseases and Montana Agricultural Experiment Station.)

Richardson, John L. The outlaw shrub: Common barberry once so highly prized spreads stem rust to grains. *The Field Illustrated* 36 (No. 9): 27, 49-50, illus. September, 1926. (Cooperation between the Office of Crops and Diseases and the Illinois Agricultural Experiment Station and the Illinois Department of Agriculture.)

Stakman, E. C., L. W. Melander, and Donald G. Fletcher. Barberry eradication pays. *Minn. State Dept. Agr. Bul.* 55: figs. 1-15. May, 1927. (Cooperation between the Office of Cereal Crops and Diseases and the Department of Agriculture, University of Minnesota, and the Minnesota State Department of Agriculture.)

Thiel, A. F. Reduce stem-rust losses by barberry eradication. *Nebr. Col. Agr. Ext. Circ.* 128 (revised): 2-16, figs. 1-9. July, 1927. (Cooperation between Office of Cereal Crops and Diseases and the Extension Service of the Nebraska Agricultural College.)

Thompson, Noel F., and W. W. Robbins. Methods of eradicating the common barberry (*Berberis vulgaris* L.). *U. S. Dept. Agr. Bul.* 1451: 1-45, pls. 1-13, fig. 1. December, 1926. (In cooperation with the University of Wisconsin and the Wisconsin Department of Agriculture.)

In addition, the Conference for the Prevention of Grain Rust has supplied colored post cards and a statement of stem-rust loss. A colored plate of the life cycle of stem rust, and a colored plate of a twig of common barberry were prepared for use in bulletins and circulars. A small calendar card, and a new supply of plates showing the characteristics of stem rust and of the barberry also were supplied.

#### Survey and Eradication

Common barberries are found for the most part by means of surveys. Three are in progress, (1) the original or first survey, (2) the second survey, and (3) resurveys.



In the first survey about 869 counties of the 920 counties necessary to survey have been covered. About 20 counties were covered during the past fiscal year. This survey for the most part is for the purpose of finding and destroying fruiting barberry bushes.

In the second survey approximately 214 counties have been covered a second time since this survey was begun in 1922. Almost 45 counties were covered in the past fiscal year. In this survey an attempt is made to eliminate every barberry bush and seedling from both city and rural properties.

Resurveys were made only when necessary to find and destroy sprouts and seedlings developed on properties from which barberries had been eradicated. In the past fiscal year, 16,392 sprouting bushes were destroyed. In the resurveys, inspection is made not only of the property from which bushes have been removed but of surrounding properties to which seeds may have been spread.

Common barberries are killed as found or as soon as arrangements can be made for their destruction. Piling salt around each stalk is the usual method. Instead of salt, kerosene sometimes is applied in a similar manner. Barberries close to valuable plants or trees are dug or pulled, as chemicals also may destroy the near-by plants. It sometimes is more economical to dig small bushes and pull seedlings than to treat them with chemicals.

The results for the more than nine years of survey and eradication, from April 1, 1918, to June 30, 1927, show 14,411,662 barberry bushes, sprouting bushes, and seedlings found and 14,391,314 eradicated. These totals include 6,708,446 bushes, 307,980 sprouting bushes, and 7,395,236 seedlings found and 6,691,646 bushes, 307,718 sprouting bushes and 7,391,950 seedlings destroyed. Table 3 presents the results by States.

#### Summarized Results

During the fiscal year ended June 30, 1927, approximately 20 counties were covered by original survey. Approximately 45 counties were covered in second survey. Resurveys for sprouts and seedlings were made only where necessary.

During the entire campaign, from April 1, 1918, to June 30, 1927, an area equivalent to approximately 869 counties was covered in the first survey. Both city and farm properties were inspected on this survey. About 214 counties of those covered by a first survey were covered again in the second survey. Original bushes numbering 6,708,446 were located; of these 6,691,646 were destroyed. On resurveys, 307,980 sprouting bushes were found and 307,718 were destroyed. In all surveys, 7,395,236 seedlings were found and 7,391,950 were destroyed. The number of bushes includes those also found and destroyed in the second surveys. Seedlings include those found on all surveys.

A grand total of 14,411,662 bushes, sprouting bushes, and seedlings were found in all surveys during the entire campaign, and of these 14,391,314 were destroyed and arrangements were made for destroying the remainder. (See Table 3.)

Table 1. Federal Allotments to States for Barberry Eradication by Fiscal Years, 1918 to 1927, Inclusive

State	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26	1926-27	Total
Colorado	\$ 100:	\$ 6,400:	\$ 4,235:	\$ 3,600:	\$ 4,050:	\$ 6,000:	\$ 3,500:	\$ 3,500:	\$ 3,900:	\$ 4,000:	\$ 39,285
Illinois	1,200:	7,500:	11,650:	8,500:	8,565:	20,000:	30,000:	45,000:	39,500:	34,500:	206,415
Indiana	1,500:	8,000:	10,165:	8,300:	7,450:	20,000:	30,000:	22,000:	18,000:	19,500:	144,915
Iowa	1,650:	13,750:	11,390:	15,875:	13,750:	30,000:	30,000:	17,000:	18,000:	21,500:	172,915
Michigan	1,150:	14,025:	16,380:	10,375:	9,050:	20,750:	30,000:	38,000:	36,500:	34,500:	210,730
Minnesota	2,500:	12,250:	13,050:	13,200:	13,550:	30,500:	32,000:	22,000:	26,000:	27,500:	192,550
Montana	995:	3,550:	3,525:	1,050:	825:	5,350:	8,000:	18,000:	18,000:	15,500:	74,795
Nebraska	1,025:	13,825:	10,150:	14,575:	13,525:	30,375:	35,000:	17,000:	18,000:	19,500:	172,975
North Dakota	265:	8,350:	10,480:	15,650:	13,510:	30,150:	32,500:	17,000:	25,000:	24,500:	177,405
Ohio	550:	6,225:	10,620:	9,275:	8,400:	20,000:	30,000:	38,000:	36,500:	34,500:	194,070
South Dakota	1,115:	8,350:	5,290:	14,200:	13,300:	30,000:	35,000:	17,000:	25,800:	25,000:	175,055
Wisconsin	1,500:	11,250:	9,980:	8,750:	8,200:	30,000:	30,000:	31,000:	26,000:	25,000:	181,680
Wyoming	---	785:	3,395:	3,000:	3,490:	2,500:	2,500:	1,000:	1,500:	1,000:	19,170
Gen'l Service <sup>b/</sup>	25,150:	35,740:	29,690:	20,850:	29,535:	74,375:	96,500:	124,315:	82,300:	88,500:	605,755
Total											
Appropriation	\$ 37,000:	\$150,000:	\$150,000:	\$147,200:	\$147,200:	\$350,000:	\$425,000:	\$411,315:	\$375,000:	\$375,000:	\$2,567,215

<sup>a/</sup> Barberry Eradication was begun April, 1918, under funds appropriated for Stimulating Agriculture. The figures in this column are the approximate expenditures in the States listed.

<sup>b/</sup> General Service includes funds for (1) Department and Bureau Reserves, (2) Washington Salaries, and supplies, and (3) Field supplies, investigations, education and publicity.

Table 2. Total of Cash Appropriations and Allotments and Cash Equivalent in Advisory Services, Office Space, General Service and Supplies of the Aid Allotted by State and Other Cooperative Agencies to the Barberrry Eradication Campaign, from July 1, 1918, to June 30, 1927

State or Agency	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1925-26	1926-27	Total for 9 fiscal years
Colorado	\$ 300:	\$ 300:	\$ 300:	\$ 300:	\$ 350:	\$ 700:	\$ 2,675:	\$ 4,900:	\$ 5,060:	\$ 14,385
Illinois	200:	100:	100:	100:	270:	10,297:	5,000:	11,800:	6,000:	33,867
Indiana	2,250:	2,250:	2,250:	2,250:	2,250:	5,250:	5,250:	2,750:	2,750:	27,250
Iowa	1,911:	7,206:	1,741:	1,354:	1,882:	7,500:	7,500:	5,800:	6,100:	40,994
Michigan	4,300:	1,925:	1,400:	1,425:	2,000:	7,060:	7,060:	7,060:	7,060:	39,290
Minnesota	850:	380:	395:	20,395:	21,000:	14,850:	15,000:	3,500:	7,750:	84,150
Montana	500:	2,081:	50:	100:	725:	725:	3,000:	3,500:	3,500:	14,181
Nebraska	1,166:	1,200:	1,200:	2,168:	2,168:	2,168:	4,268:	4,293:	3,100:	21,731
North Dakota a/	1,763:	750:	900:	1,100:	1,400:	12,500:	13,600:	6,100:	6,100:	44,213
Ohio	600:	360:	360:	1,362:	480:	6,200:	9,350:	7,350:	7,350:	33,412
South Dakota	750:	1,265:	759:	1,562:	807:	5,597:	10,000:	8,877:	8,977:	38,594
Wisconsin	3,500:	1,700:	1,700:	1,650:	2,300:	3,400:	5,000:	5,000:	4,150:	28,400
Wyoming	30:	150:	100:	240:	100:	500:	500:	---	300:	1,920
Conf. Prevention	:	:	:	:	:	:	:	:	:	:
Grain Rust	---	---	---	15,000:	85,000:	60,000:	30,000:	20,000:	20,000:	230,000
Total	\$ 18,150:	\$ 19,667:	\$ 11,255:	\$ 49,006:	\$ 120,732:	\$ 136,747:	\$ 118,203:	\$ 90,930:	\$ 88,197:	\$ 652,887

a/ North Dakota began a State campaign in 1917, expending that year \$1,721 in cash and \$200 in service other than cash.



Table 3. Grand Summary, Original Bushes, Sprouting Bushes, and Seedlings, 1918 to 1927. Data showing, by States, the number of bushes, sprouting bushes, and seedlings found and destroyed in all surveys in the barberry eradication campaign, April 1, 1918, to June 30, 1927

State	Original bushes		Sprouting bushes		Seedlings		Grand Total	
	Found	Destroyed	Found	Destroyed	Found	Destroyed	Found	Destroyed
Colorado	24,893:	24,889:	6,995:	6,995:	4,278:	4,278:	36,166:	36,162
Illinois	370,986:	370,986:	21,491:	21,491:	2,140,412:	2,140,412:	2,532,889:	2,532,889
Indiana	197,293:	197,285:	19,842:	19,840:	17,350:	17,350:	234,485:	234,475
Iowa	804,491:	804,485:	28,366:	28,366:	174,316:	174,316:	1,007,173:	1,007,167
Michigan	567,539:	555,489:	2,942:	2,942:	2,868,249:	2,868,249:	3,438,730:	3,426,680
Minnesota	790,109:	790,109:	50,932:	50,932:	56,184:	56,184:	897,225:	897,225
Montana	11,760:	11,569:	5,204:	5,204:	18,054:	18,054:	35,018:	34,827
Nebraska	97,794:	97,793:	16,687:	16,687:	15,356:	15,356:	129,837:	129,836
North Dakota	22,852:	22,852:	2,149:	2,149:	283:	283:	25,284:	25,284
Ohio	331,514:	330,849:	17,942:	17,942:	705,253:	705,253:	1,054,709:	1,054,044
South Dakota	60,572:	60,572:	43,025:	43,025:	26,791:	26,791:	130,388:	130,388
Wisconsin	3,424,467:	3,420,761:	91,830:	91,649:	1,368,657:	1,365,371:	4,884,954:	4,877,781
Wyoming	4,176:	4,007:	575:	496:	53:	53:	4,804:	4,556
Total	6,708,446:	6,691,646:	307,980:	307,718:	7,395,236:	7,391,950:	14,411,662:	14,391,314

# THE ORGANIZATION AND PERSONNEL OF THE BARBERRY ERADICATION CAMPAIGN, JULY, 1922

## Administrative

Washington, D. C. Office of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, Associate Pathologist in Charge, Dr. F. E. Kempton; Associate Pathologist, Lynn D. Hutton.

## Field Operations

Education: -----, Associate Pathologist, cooperating with The Conference for the Prevention of Grain Rust, 300 Lewis Building, Minneapolis, Minn. Cartoonist and Illustrator (part time), G. D. George, University Farm, St. Paul, Minn. Agent: Emil H. Ostrom.

Investigations: Studies of barberry species and hybrids. Associate Horticulturist, B. Y. Morrison.

Epidemiology Studies: Collaborating Agent, Dr. E. C. Stakman, University Farm, St. Paul, Minn.; Associate Pathologists: Edmund B. Lambert and Ralph U. Cotter; Agents: Wallace Butler, Jonas J. Christensen and James M. Wallace; stenographer-clerk, Laura M. Hamilton.

Colorado: Department of Botany, Agricultural College, Fort Collins. State Leader, Ernest A. Lungren; Cooperating Agent, Roud McCann, Director of Extension; Collaborating Pathologist, Dr. L. W. Durrell; State Law Enforcement Agent, Dr. C. P. Gillette, State Entomologist; stenographer-clerk (part time) Katherine E. Abbott; Field Agents:

Edward W. Bodine  
Arthur A. McCutchen

Glen N. Davis  
Bruce J. Thornton

Illinois: Post Office Building, Urbana. State Leader, Gordon C. Curran; Cooperating Agent, H. W. Mumford, Director of Extension; Collaborating Pathologists, George H. Dungan and Benjamin Koehler; State Law Enforcement Agent, P. A. Glenn, Chief Inspector, State Department of Agriculture; stenographer-clerk, Lucile M. Friedman; Field Agents:

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Murl E. Tascher  
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Benjamin H. Davis	Amos C. Michael	Lawrence W. Wright
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Michigan: Agricultural College, East Lansing. State Leader, Walter F. Reddy; Cooperating Agent, R. L. Baldwin, Director of Extension; E. C. Mandenberg, State Inspector of Nurseries and Orchards; Herbert E. Powell, Commissioner of Agriculture; stenographer-clerk, Edna M. Conway; Field Agents:

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	Joe F. Murray	

Wisconsin: Department of Agriculture, State Capitol Annex, Madison. State Leader, William A. Walker; Cooperating Agents, K. L. Hatch, Director of Extension, and R. E. Vaughn, Extension Pathologist; Collaborating Pathologists, Dr. L. R. Jones, Dr. J. G. Dickson, and Noel F. Thompson; Walter A. Duffy, Commissioner of Agriculture; State Law Enforcement Agent, E. L. Chambers, Acting State Entomologist; stenographer-clerk, Ida T. Goul; Field Agents:

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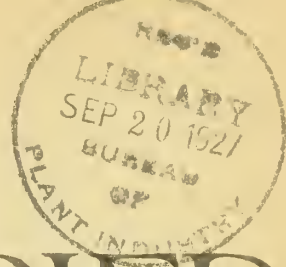
Wyoming: College of Agriculture, University of Wyoming, Laramie.  
Acting State Leader, E. A. Lungren; Cooperating Agent, A. E. Bowman, Director  
of Extension; Commissioner of Agriculture, A. D. Faville; State Law Enforcement Agent, W. R. Corkins, State Entomologist; stenographer-clerk furnished  
by State. Field activities are combined for the States of Colorado and Wyoming. The same field agents are used in the two States.

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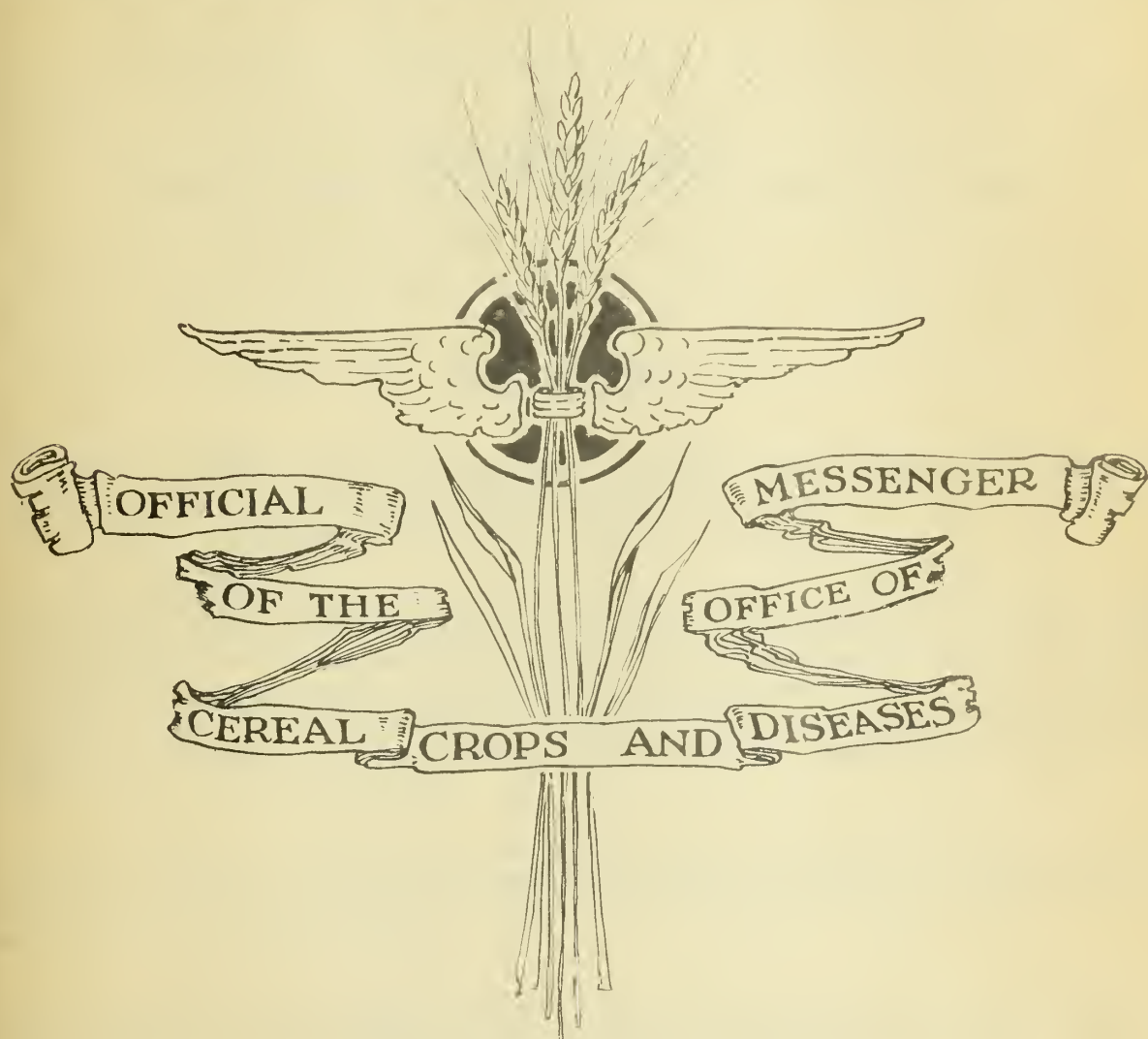
Credit is hereby gladly given to State Leaders, collaborators, and agents who have supplied data, to Mrs. M. S. Koepfle, who has compiled, summarized, and tabulated them, and to others who have aided in the preparation of reports.

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917



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## C E R E A L C O U R I E R

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 22

September 10, 1927  
Personnel (Sept. 1-10) and Field Station (Aug. 16-31) Issue

### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, will attend the annual conference and inspection of corn-borer infestation in Ohio, Michigan, and Ontario, Canada, on September 21 to 23, inclusive.

It is planned to meet at corn-borer headquarters, 615 Front Street, Toledo, Ohio, on the morning of Wednesday, September 21, and proceed to an inspection of corn fields in that vicinity and of the plat experiments at Bono, conducted cooperatively by the Ohio Agricultural Experiment Station and this Office. It is probable that a demonstration of corn harvesting machinery will be held at that time. In the afternoon farmers' fields and the State experiment plats at Monroe, Mich., will be visited.

On Thursday, September 22, the party will be taken through Essex and Kent counties, Ontario, where corn formerly was grown for grain for hog feeding but where severe infestation now has reduced the acreage probably to less than 10 per cent of the former area.

On Friday, September 23, the meeting will terminate with a conference in Detroit, Mich. It is expected that the entire Department Corn-Borer Committee, of which Dr. Ball is chairman, will be in attendance.

The appointment of Kenneth D. Doak, who has assisted Dr. E. B. Mains as agent in the cooperative investigations of leaf rusts of wheat, barley, rye, and corn at La Fayette, Ind., during the absence for the past year of Dr. H. S. Jackson, was terminated August 31, 1927.

Miss Melba K. House was appointed September 1 to assist with stenographic and general clerical work in connection with the cooperative cereal disease investigations that are being conducted at the Purdue University Agricultural Experiment Station, La Fayette, Ind. Miss House is appointed to take the place made vacant by the resignation of Mrs. Ruth B. Paul on July 31.

Dr. H. B. Humphrey, senior pathologist in charge of cereal-rust investigations, returned on September 4 from New York and Canada. He made a tour of the uniform wheat and oat rust nurseries and oat blast nurseries located at Ithaca, N. Y.; Kapuskasing, Guelph, and Ottawa, Ontario; Ste. Anne de la Pocatière, Quebec; Frederickton, New Brunswick; Charlottetown, Prince Edward Island, and Kentville and Nappan, Nova Scotia.

At all of these stations except Frederickton, N. B., there was enough stem rust on the different varieties of wheat and oats to furnish valuable information on the distribution and severity of infection of the different physiologic forms.

At Frederickton, N. B., no stem rust was found on any of the varieties in the oat rust nursery.

At Kapuskasing, Ont., there was a general and severe oat rust epidemic in the uniform rust nurseries and in the varietal plats of the experimental farm. Some of the more susceptible varieties of wheat showed as much as 90 per cent severity of infection. Crown rust of oats and leaf rust of wheat were found at all of the stations where the uniform rust nurseries were located and were prevalent also in commercial fields in the Provinces of Ontario, Quebec, New Brunswick, Prince Edward Island, and Nova Scotia.

In the Georgian Bay country, near Collingwood, Ont., many barberries were found in cultivation. Oat fields in the Collingwood area were very badly infected with stem rust.

Mrs. Rose A. Lusby, senior clerk-stenographer, was transferred from the Department of Justice on September 1 to be assigned as clerk and secretary to Dr. C. R. Ball to fill the vacancy caused by the transfer of Mrs. B. W. Gahn to another office.

The appointment of L. E. Melchers as agent in the cooperative cereal-disease investigations at the Kansas State Agricultural College was terminated August 31, when his year's leave of absence began. Prof. Melchers was in Washington from August 26 to 29 before going to New York whence he was to sail on the S. S. Arabic of the Red Star Line on September 3 for Antwerp.

Prof. Melchers expects to attend the International Genetics Conference at Berlin before going on to Venice where he will take boat for Alexandria, Egypt. He will be on appointment for a year by the Egyptian Ministry of Agriculture with headquarters at Cairo and Giza. He will make a survey of the agricultural district along the Nile. An attempt will be made to ascertain the outstanding economic plant-pathologic problems, and a system of plant-disease survey will be organized. Dr. M. Bahgat, a former student of Prof. Melchers, will be directly associated with him in all survey and organization activities and will act as interpreter. He also will conduct the work after Prof. Melchers leaves it

Francis L. Smith was appointed agent, effective September 1, to assist Prof. C. O. Johnston, in charge of leaf-rust investigations and experiments at the Kansas State Agricultural College. Mr. Smith's appointment is made necessary because of the resignation of Prof. L. E. Melchers on August 31.

T. R. Stanton, agronomist in charge of oat investigations, returned to the Office on September 1 after an extended trip in the West in the interests of oat investigations. Stops were made in Ohio, Indiana, Illinois, Nebraska, Iowa, Minnesota, North Dakota, Montana, Idaho and Kansas.

In the Corn Belt, oats were materially affected by the dry weather in June and July, resulting in low yields and light test weight. The color of the oats is better than usual, however, owing to the fact that the harvested oats were threshed in many localities without any rain falling on them at all. In Iowa the yield of late oats also was markedly reduced by stem rust of oats.

In the Snake River Valley in southern Idaho crops as usual were excellent. The record acre yields reported on farms up to the time Mr. Stanton left Aberdeen were as follows:

Federation wheat	76 bushels
Idamine oats	125 bushels
Trebi barley	103 bushels.

While at Aberdeen a trip was made with Superintendent A. E. McClymonds to Rexburg, Idaho, to harvest a small cereal nursery which is being conducted in cooperation with the county agent of Madison County, where wheat, oats, and barley are being grown at an altitude of nearly 6,000 feet. On the farms of the Rexburg Bench, where dry farming prevails, the winter-wheat crop was not so good as usual, owing to winterkilling and unfavorable spring conditions. While at Rexburg a visit also was made to the Egin Bench, apparently one of the oldest irrigation settlements in the upper Snake River Valley. In this section potatoes are grown extensively by sub-irrigation methods; one field of potatoes containing 100 acres was observed.

Mr. Stanton spent about two weeks at Ames, Iowa, assisting in harvesting and recording data in the cooperative oat identification and breeding nurseries. Selections from the unnamed oat, C. I. No. 357, and from Fulghum, under the rather peculiar climatic conditions prevailing at Ames this year, were badly infected with both crown and stem rust. Both of these varieties apparently are too susceptible to the rusts of oats for central Iowa. The new variety, Iogold, again appeared very promising and was relatively free from stem rust. Unfortunately, owing to severe rust infection and premature ripening as a result of the dry weather, the special varietal nursery which was sown for making a study of shattering of oats, was abandoned. Several of the Kher-son selections made by F. A. Coffman at Akron, Colo., appeared to be of considerable promise, one of which apparently is as resistant to stem rust as Richland.



While at Aberdeen observations were made on over 250 recently introduced varieties from foreign countries. Apparently many of these varieties are duplicates of those which were received at an earlier date. Some interesting data were collected on the cooperative smut-breeding project, in which Dr. V. F. Tapke assisted. Some of the selections from the Markton-Silvermine, Markton-Victory, and similar crosses, were again free from smut and also had excellent kernel characters. A number of these selections were grown in yield test nurseries during the current year at Aberdeen. While at Aberdeen Mr. Coffman recorded many data on the inheritance of certain kernel characters in a number of oat crosses.

Mr. Stanton stopped in Chicago to visit the plant of the Warren Seed Cleaning Co. Inc., located at 526 West 18th St. The plant was not in operation, however, as further additions and changes were being made in the equipment. The claims for this machine are that it recleans to purity without wasting seeds of value. The separations are made by the use of solutions of different specific gravities. The present plant will handle about two carloads of seed per day.

Mr. Stanton also visited the offices of the Quaker Oats Co., and conferred with officials regarding the source and quality of oats used in the manufacture of rolled oats. It was somewhat of a surprise to learn that no special grade of oats is used for this purpose. The margin of profit apparently is so small that oats selling for just a few cents above the daily market price can not be used profitably. The officials of the Company said that much of the new oat crop now being received was exceedingly light, and that the bulk of their stock was being bought in Indiana, Illinois, Iowa, and Minnesota. They further stated that the early small-kerneled oats such as the Kherson, Sixty-Day, and selections from them, are very satisfactory for milling. While the groats are small the hulls are very thin, which gives them a decided advantage for the manufacture of rolled oats.

#### VISITORS

Dr. F. D. Kern, professor of botany and dean of the graduate school of the Pennsylvania State College, was an Office visitor on September 2.

Dr. Vladimir Škorić, plant pathologist, and Docent in the University of Zagreb (Yugoslavia), was an Office caller on August 31 to learn something of the organization and scope of the cereal-disease project.



MANUSCRIPTS AND PUBLICATIONS

Galley proof of article entitled "Inheritance of Winter Hardiness and Growth Habit in Crosses of Marquis with Minhardi and Minturki Wheats," by H. K. Hayes and O. S. Aamodt, for publication in the Journal of Agricultural Research, was read on September 3.

Galley proof of Farmers' Bulletin 1540 entitled "Smuts of Wheat and Rye and Their Control," by W. H. Tisdale and V. F. Tapke, was read on September 9.

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FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H.F.Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, P. W. Rohrbaugh)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. E. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)  
(September 3)

An outstanding example of the good accomplished by the educational campaign carried on in Illinois schools last winter recently was brought to the attention of Earl D. Cornwell, who has charge of the barberry scouting in Lake County. Gerald M. Mason, science instructor at Zion City, last spring made a study of black stem rust in his biology classes. As a result of this instruction one of the students brought in some quack grass severely infected with stem rust in the black stage. One afternoon in August Mr. Mason took his high school classes on a field trip in search of common barberry bushes. The students were divided into small units. Most of the groups returned without finding any barberries, but some of the students collected quack grass which was badly rusted. The pupils then made another search near the center of heaviest infection on the quack grass. After a careful inspection three plantings of common barberry were discovered. Sixty-three bushes and 5,000 seedlings were located and destroyed as a result of this cooperation. The educational institution with which Mr. Mason is connected has a high school and college department, and a study of the common barberry and its relation to black stem rust was made in all the high school and college classes. This Zion City educational institution was commended for the excellent interest displayed.

During the past month the Prairie Farmer of Chicago, Ill., mailed to its subscribers in Illinois more than 50,000 of the return post cards prepared by The Conference for the Prevention of Grain Rust. More than 200 cards already have been returned, and several new plantings of barberry have been reported.

An interesting editorial entitled "Help Illinois Farmers Destroy Barberry Bushes" appeared in the August 22 issue of the Chicago Herald Examiner. To our knowledge this is the first time barberry eradication has been mentioned editorially in any Chicago newspaper. Publicity of this type helps greatly in gaining the support of city residents.

A number of roadside demonstrations were erected in August. An especially interesting one was made at the Yeomen City of Childhood Farm three miles north of Elgin, in Kane County. One of the largest bushes ever found in America was located on this farm, not far from a public picnic ground. The Yeomen management cooperated with the barberry scouts and constructed a permanent stile over the fence separating the picnic grounds from the wooded area where the giant bush was growing. Small signs were placed at the picnic grounds and along the roadways directing people to the bush. A large sign describing the barberry was placed by the side of the bush. A long news story announcing the discovery of the bush and describing its exact location was published on the front page of the Elgin Daily Courier-News. Scores of people visited this demonstration. In fact, after a few days a path was beaten down from the stile to the bush, and twigs were broken off by interested persons who wished to take samples of the barberry home for comparison with other shrubs.

#### INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

#### OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

#### WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)



## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rusts, Chi Tu, Acting in Charge)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) [August 31]

The weather of the last half of August was damp and interfered with the bagging of seed heads. Otherwise the project is doing nicely.

Broomcorn will be ready to harvest within a week.

Should frost hold off as late as usual the grain sorghums will give high yields this season.

On August 22, the writer inspected the seed plot of Scarborough broomcorn on the farm of C. C. Miller, Elk City, Okla. Type heads were bagged for next year's seed. Mr. Miller devotes most of his time to producing pure broomcorn seed.

The acreage of Indian corn between Woodward and Elk City is larger than usual and a good yield is assured.

Maximum temperature for the last half of August, 92 degrees on the 22nd; minimum, 56 degrees on the 19th; precipitation, 0.83 inch in five showers. Nearly every forenoon has been misty and cloudy. The precipitation for August was 3.85 inches.

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)  
(September 1)

During the field season of 1927 the major activity was second survey conducted in Larimer County and in part of Denver County. In the former a very thorough search was made for common barberries on every farm and city property and along every ditch and river. Most of the bushes found, many of which were very large, had escaped from cultivation and were growing along ditches and rivers.

Along the Poudre and Big Thompson rivers in Larimer County some 380 bushes were found, most of which were higher than our heads. Nearly all of these were infected and spreading rust. Up to September 1 this season, there have been found on this survey 405 new bushes, 24 new properties, and 3,750 seedlings. Only 25 of the bushes were found in cities and towns; the remainder were escaped bushes.

There was no loss of winter wheat in Colorado as the result of stem rust. Most of the spring wheat was cut before rust did any damage, although some of the later spring wheat suffered losses from stem rust. Oats and barley were rusted to some extent but were not greatly damaged. The weather was favorable for rust throughout the growing season but there was no rust epidemic.

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague)

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren) (September 3)

Second survey of Laramie County has been completed but no common barberries were found.

On August 31, the State Leader made a trip to Archer to make readings on the rust nursery. Field examinations showed a sprinkle of stem rust over southern Wyoming but hardly enough to do much damage. Much of the wheat was being cut at that time. Stem rust was quite common on oats but not sufficient to damage the crop. A trace of crown rust also was found.

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (September 3)

The harvesting of cereal plats at the Substation was completed last week, and the nursery harvest was completed this week with the exception of a few miscellaneous rows.

Threshing of the Dry Land Rotation was begun a few days ago and is now nearly completed. The yields are good but have not all been computed. Threshing in Stark County became general this week. The yields are generally good except where affected by hail. A variable amount of rust damage is indicated by the weight per bushel of grain marketed, varying from less than 55 to 61 pounds per bushel. A yield of 29 bushels per acre was reported from a 100-acre field on summer fallow.

Threshing was interrupted by rain early this week totaling about half an inch.

Official visitors at the Substation since the middle of August were Messrs. F. D. Richey, K. S. Quisenberry, and V. F. Tapke from the Office of Cereal Crops and Diseases, and Director P. F. Trowbridge and Mr. Booth, the new Extension Agronomist, of the State Agricultural Experiment Station.

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (September 2)

Flax varieties in plats and nursery have ripened slowly during the last half of August.

The flax and wheat mixtures were harvested August 29. The wheat had been ripe for some time, but the flax was slower in ripening. The former is somewhat shriveled, apparently on account of rust injury.



All the flax varieties of the tall Russian type in plats and nursery were harvested August 29, 30, and 31. Varieties of Argentine and other late maturing types are not yet fully ripe.

Rust on flax is more severe than usual. Pasmó also is conspicuous on some varieties.

Crosses between common flax, Linum usitatissimum, and other species of Linum, observed to date have not been successful. Bolls which have developed to approximately normal size on common flax as a result of pollination with L. perenne or L. lewisii contain no seed. Bolls failed to develop to even one-fourth of the normal size from flowers emasculated and left unpollinated.

The weather during the last of August has been generally cool, with more than a normal rainfall. Maximum temperature, 86 degrees, August 25; minimum, 43 degrees, August 18; precipitation, 1.10 inches.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus)

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)  
(August 27)

During the harvest season of 1926 in the Judith Basin it was noticed that bunt was present in winter wheat to a serious extent. Many farmers believed that bunt was increasing. Because of this situation it was decided by R. W. May, then in charge of the cereal experiments at the Judith Basin Substation, that some experiments should be started leading to the development of smut-resistant winter wheats adapted to Montana conditions. It was decided to test a number of the more promising varieties and strains to determine their reaction to bunt under the conditions at Moccasin.

Inoculum was collected from a field of Turkey wheat across the road from the Substation. Apparently the environmental conditions in the fall of 1926 were very favorable for infection since the amount of smut which developed was very high on the susceptible varieties, and some of the varieties which previously had been considered to be immune or highly resistant showed considerable infection. This apparently is in line with the results obtained in Oregon this year. The accompanying table presents the data obtained at Moccasin. The varieties are listed in order of resistance to bunt as demonstrated this year.



Average percentage of bunt in winter-wheat varieties and hybrids grown in duplicate 40-foot rows at Moccasin, Mont., in 1927.

Name	C.I.No.	Per cent smut
Turkey x Bd. Minn. No. 48	8243	3.3
Minturki x Bel.-Buff. 5546	8033	11.6
Ridit	6703	14.3
Oro	8220	20.6
Minessa	6154	21.9
Minturki	6155	22.8
Kanred x Minessa	8045	29.1
Beloglina	1543	35.1
Regal	7364	51.4
Beloglina	1667	54.8
Turkey x Minessa (Nursery No. 485)	----	61.6
Minard	6690	70.1
Odessa	6151	76.0
Odessa	3687	80.4
Karmont**	6700	81.2
Turkey	6152	82.0
Turkey x Minessa	8028	82.0
Turkey	6250	82.6
Newturk	6935	86.1
Newton x Turkey 163E1-3	----	86.9
Beloglina-Buffum	5545	87.5
Kharkof	6686	87.8
Minhardi x Minturki	8047	88.4
Kharkof	1583	88.5
Montana No. 36	5549	88.5
Minhardi x Minturki	8034	88.7
Padui	6153	89.0
Kanred	5146	89.1
Minhardi	5149	89.7
Buffum	3330	89.9
Turkey	1558	90.0
Superhard	8054	90.3
Karmont	6700	90.6
Turkey	6249	92.5
Kanred x Minhardi	8041	92.8
Do	8040	92.8
Kanred x Buffum	8030	92.9
Kanred x Minhardi	8031	93.0
Eureka x Minhardi	8036	93.2
Karmont*	6700	93.8

\* Inoculum from winter wheat

\*\* Inoculum from spring wheat

(September 3)

The weather of the month of August was not favorable for the ripening of late seeded spring wheat. The precipitation for the month was 1.74 inches, which came in light showers on 14 days. Many fields of spring wheat are very green. Combines have been running in winter-wheat fields for the past 10 days and good yields are being reported.

The winter-wheat nursery was seeded on August 20 and 31 and the plats on August 22. The August 20 and 22 seedings have emerged to good stands.

The first spring wheat on the cereal project was cut September 1, and all varieties from normal date of seeding will be ripe early next week. The late date-of-seeding plats, however, will not be ripe for at least two weeks.

K. S. Quisenberry left Moccasin on August 23, after having spent three weeks at the Substation. Dr. V. F. Tapke was a visitor on August 18.

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

#### WESTERN BASIN AND COAST AREAS (North to West and South)

##### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

##### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

##### OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(August 31)

Favorable harvest weather prevailed in eastern Oregon almost the entire month of August and most farmers now have their grain in warehouses and elevators. On the station threshing has been completed and the grains are now being recleaned and tested.

Table 1, which follows, presents the results obtained in the varietal experiment with winter wheat. Only two of the smut-resistant wheats, Oro and the selection from Argentine, exceeded the yield of Kharkof, the standard winter wheat in this section of Oregon. Because of its resistance to the old form and to the apparently new physiological form of stinking smut discovered here this year, and because of its high yield at Moro this year and for several years past in some of our outside nurseries, the new variety Oro, C. I. No. 8220, will be distributed to farmers this fall for further trial. The yield of Regal this year, like that of Redit, was disappointing. Both Regal and Redit in our smut trials this year also contained more than 7 per cent smut.

Table 1. Acre yields of winter-wheat varieties grown in triplicate 1/20-acre plats at Moro, Oregon, in 1927

Rank:	Variety	C. I. No.	Yield (Bu. per Acre)			
			Series 1	Series 2	Series 3	Average
1	:White Odessa	:4655	: 38.3:	44.7:	51.3:	44.8
2	:Federation	:4734	: 39.5:	43.0:	45.5:	42.7
3	:Hybrid 128	:4512	: 39.3:	45.0:	43.3:	42.5
4	:Argentine	:1569-2	: 39.0:	42.0:	41.0:	40.7
5	:Oro	:8220	: 39.5:	42.3:	36.7:	39.5
6	:Turkey	:1571	: 37.7:	40.2:	39.3:	39.1
7	:Hybrid 128 x Fortyfold(1997A4-3-22) --		: 39.8:	39.2:	37.5:	38.8
8	:Kharkof	:1442-12:	35.7:	40.2:	37.7:	37.9
9	:Albit	:-----	: 36.2:	37.0:	40.3:	37.8
10	:Turkey x Florence (G326 W-1)	:-----	: 38.3:	38.0:	36.7:	37.7
11	:Arcadian x Hard Federation	:8246	: 39.3:	36.7:	36.7:	37.6
12	:Kanred	:5146	: 38.3:	36.0:	37.2:	37.2
13	:Superhard	:8054	: 36.7:	36.8:	38.0:	37.2
14	:Kanred x Marquis	:8245	: 38.0:	36.7:	36.0:	36.9
15	:Turkey (Local)	:4429	: 36.8:	38.3:	34.7:	36.6
16	:P-1068 x Preston	:8244	: 35.2:	36.8:	36.7:	36.2
17	:Hybrid 128 x White Odessa(231044-1) --		: 34.8:	35.3:	37.3:	35.8
18	:Redit	:6703	: 32.1:	34.3:	34.7:	33.7
19	:Regal	:7364	: 33.0:	33.7:	33.0:	33.2
20	:Fortyfold	:4156	: 26.3:	30.0:	26.3:	27.5
--	:Fortyfold x Federation	:8247	: 37.7:	----	----	37.7
--	:Turkey x Florence (G326W8)	:-----	: 29.3:	----	----	29.3
:		:	:	:	:	:
:	Average	:	:	:	:	37.3

Table 2 presents the yields of the spring-wheat varieties in the varietal experiment this year.

Table 2. Acre yields of spring-wheat varieties grown in triplicate 1/20-acre plats at Moro, Oreg., in 1927

Variety	Yield (Bu. per acre)				
	C. I.	Series	Series	Series	Average
	No.	1	2	3	
Onas	:6221	: 40.7:	38.5:	36.8:	38.7
Baart x Federation	:8254	: 38.9:	40.9:	32.1:	37.3
Major	:4984	: 36.2:	38.3:	36.5:	37.0
Federation	:4734	: 36.2:	35.5:	34.2:	35.2
Baart x Federation, 1728A105	:-----	: 33.5:	35.5:	32.8:	33.9
Hard Federation, Sel. 60	:-----	: 33.1:	34.8:	33.5:	33.8
Hard Federation, Sel. 31	:8255	: 32.8:	35.5:	32.6:	33.6
Hard Federation, Sel. 82	:-----	: 35.3:	34.5:	31.1:	33.6
Hard Federation, Sel. 79	:-----	: 32.8:	34.8:	32.5:	33.4
Hard Federation, Sel. 71	:-----	: 34.8:	31.8:	33.1:	33.2
Baart x Federation	:8252	: 33.1:	34.3:	32.1:	33.2
Reliance	:7370	: 31.8:	34.2:	31.1:	32.4
White Federation	:4981	: 31.8:	33.1:	30.0:	31.6
Baart	:1697	: 29.4:	33.8:	29.4:	30.9
Eobs	:2826-1:	31.5:	30.8:	29.4:	30.6
Pacific Bluestem	:4067	: 28.8:	31.3:	30.5:	30.2
Currawa	:4982	: 31.1:	30.5:	28.1:	29.9
Hard Federation	:4733	: 31.0:	30.1:	27.9:	29.7
Marquis	:4158	: 27.6:	29.1:	25.5:	27.4
Average	: :	: :	: :	: :	32.9

### CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (September 1)

The weather in August, except for the last week, was favorable for the growth of the rice crop in California. The maximum temperature for August was 101 degrees on the 9th, and the minimum 49 degrees on the 30th.

Many of the early maturing rices in the nursery are now mature, the mid-season varieties are fully headed, and the late maturing rices are starting to head.

Some commercial fields sown to 1600 and Onsen will be harvested in September, but fields sown to Caloro and Early Wataribune, which constitute most of the rice acreage, will not be ready to harvest until the first week in October or possibly later. In general, the commercial crop appears to be about one week later than normal, and the present condition of the crop indicates that acre yields should be as good as, if not better than, normal.



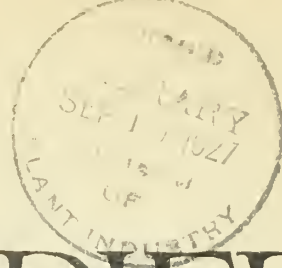
The "Annual Rice Day," held by the Richvale Farm Center, is scheduled for September 14, and the annual meeting at Cortena for September 16.

University Farm, Davis (Cereal Agronomy, V. H. Florell)

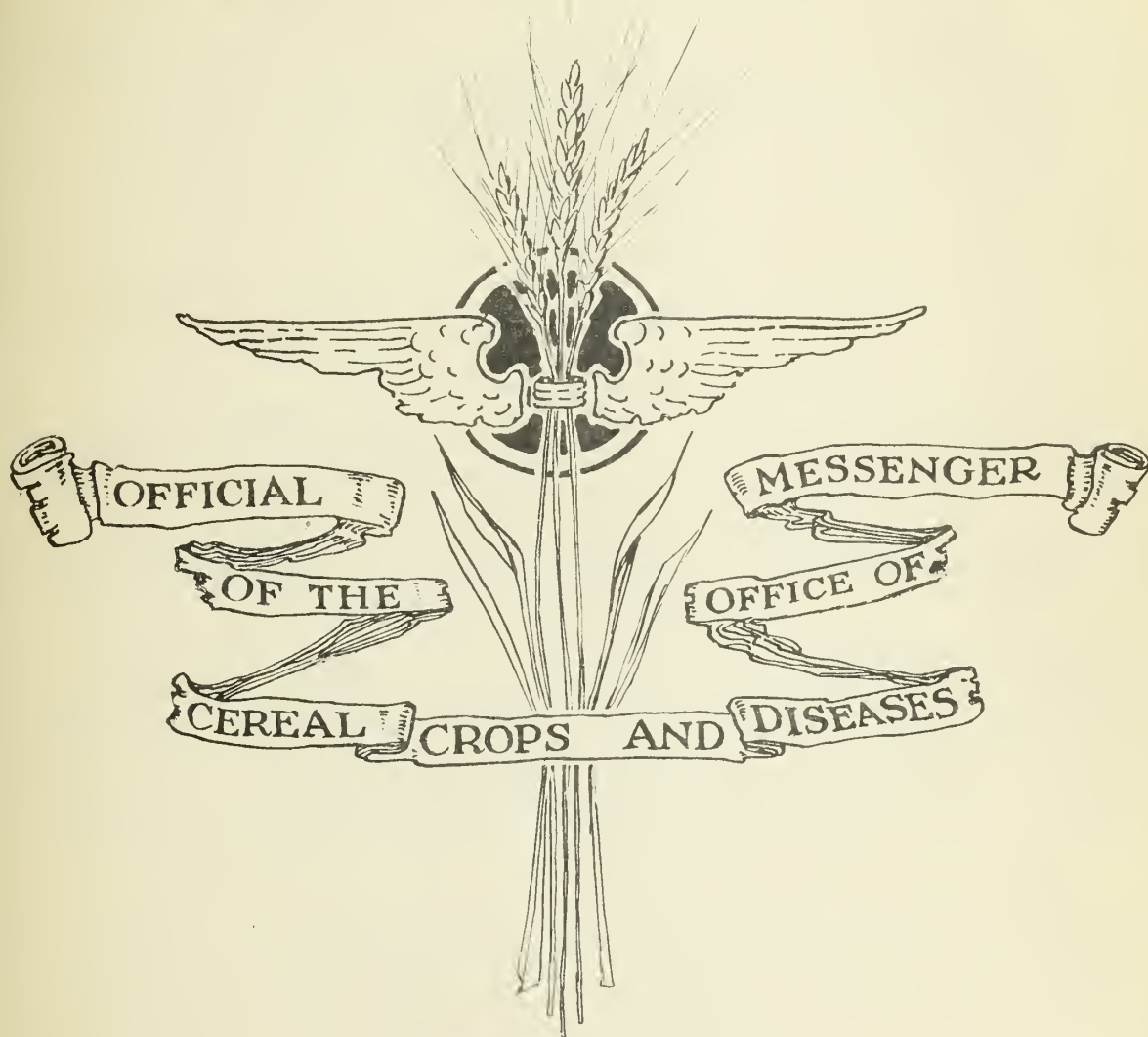
Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

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CAMBRIDGE



## C E R E A L   C O U R I E R

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 23

September 20, 1927

Personnel (Sept. 11-20) and Field Station (Sept. 1-15) Issue

### PERSONNEL ITEMS

F. A. Coffman, associate agronomist in oat investigations, returned to Washington on September 10 after a seven weeks' trip in the West in the interests of oat investigations.

H. S. Garrison, assistant agronomist, and C. H. Kyle, agronomist, in corn investigations, returned on September 20 from their trip in the corn-borer area of Ohio and Chatham, Ontario.

Dr. J. H. Martin, associate agronomist in charge of grain sorghum and broomcorn investigations, wrote from Dalhart, Tex., on September 13 that sorghums in the Panhandle country of Texas were rather late owing to the lack of spring moisture. At least a month will be required to mature many of the grain sorghums at Dalhart and at Tucumcari, N. Mex. Dr. Martin expected to visit the experiment stations at Lubbock and Big Spring, Tex., and to reach Woodward, Okla., on September 16 or 17.

Dr. Martin found the grain sorghums at Bard and Shafter, Calif., in good condition. The experiments at Davis, Calif., are limited to seedings for harvesting with the root cutter and "combine" and to the development of sorghums suitable for this method of harvesting. Dr. Martin was informed that the harvesting of milo with the combine has been practiced for several years in Kern County, California, and apparently with success.

H. S. Smith, junior administrative assistant, left Washington September 18 to travel in the States of Minnesota, Iowa, Illinois, Wisconsin, Michigan, Indiana and Ohio to consult with State Leaders in the barberry-eradication campaign and their assistants regarding fiscal matters and office procedure and assist in planning for next season's work and for the conference to be held this winter. Mr. Smith will return to Washington about October 20.

## VISITORS

G. G. Moe, associate professor of agronomy in the University of British Columbia, and his father W. J. Moe, of Franklin Centre, Quebec, were visitors in the Office on September 19. Prof. Moe is pursuing graduate study in plant breeding at Cornell University. He was particularly interested in meeting and becoming acquainted with the specialists of the Office.

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MANUSCRIPTS AND PUBLICATIONS

55 A manuscript entitled "Penicillium Injury to Corn Seedlings," by Helen Johann, was approved September 17 for publication in Phytopathology.

Galley proof of paper entitled "The Registered Varieties of American Wheat: Their Class, Origin, and Acreage," by J. Allen Clark, for publication in the Journal of the American Society of Agronomy, was read September 16.

The paper entitled "Theoretical Aspects of Small Grain Breeding," by C. E. Leighty, appears in the Journal of the American Society of Agronomy 19 (8): 690-704. August, 1927. (This paper was read as a part of the symposium on "Procedure and Results of Small Grain Breeding" at the meeting of the American Society of Agronomy held in Philadelphia, December 31, 1926.)

The article entitled "Morphological and Cytological Studies of an Oat from Ethiopia," by T. R. Stanton and E. Dorsey, appears in the Journal of the American Society of Agronomy 19 (9): 804-813, figs. 1-9. September, 1927. (Cooperative investigations conducted by the Office of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C., and the Department of Plant Breeding of Cornell University, Ithaca, N. Y.)

The article entitled "Inheritance of Awedness in Rice," by Jenkin W. Jones, appears in the Journal of the American Society of Agronomy 19 (9): 830-839, fig. 1. September, 1927. (Cooperation between the Office of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture, and the California Agricultural Experiment Station.)

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# FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, E. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

### LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)  
[September 1]

There was very little rain in August to interfere with farm operations. This permitted the harvesting and threshing of the early part of the rice crop under ideal conditions.

The total precipitation for the month totaled only 3.72 inches, or 2 inches less than in August, 1926, and 2.43 inches less than the 17-year average for August for the period from 1910 to 1926, inclusive.

For several days of the third week, the temperature was unusually low for August, the minimum being as low as 61 degrees F. This low temperature was accompanied by very gentle north winds. Had these north winds been brisk, no doubt they would have damaged the rice crop; as it was very little, if any, loss resulted.



Crops on the station developed well in August. Early rices are maturing and will be ready for harvest the first week in September. In general the plats are free of weeds. However, some of the plats in the fertilizer experiments are badly infested with sedge as the result of excessive rains in May, at seeding time, which caused poor stands and conditions favorable for germination of weed seed.

The soybean plats appear better than they have been in several years. The stands are good and the growth healthy.

During the month labor was employed in removing "tea" and other weeds from the plats, and in digging ditches made necessary to meet certain recent drainage problems.

Mr. Chambliss arrived on August 26 for a stay of several weeks.

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

#### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

#### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

#### IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, S. M. Dietz)

Iowa State College, Ames (Barberry Eradication, P. W. Rohrbaugh)

#### ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, Chi Tu, Acting in Charge)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (September 16)

The weather of the first half of September was dry and warm. It was the kind of weather needed to speed up the sorghum crops. At present, however, it looks as if the dry weather might continue too long. The sorghums are ripening rapidly. The broomcorn variety seeded June 10 has been harvested and that seeded June 24 soon will be ready to harvest. The yields of broomcorn will be above the average.

The fourth annual Field Day was held on Saturday, September 10. The attendance was larger than last year. The visitors arrived earlier than usual, and some of the crop inspection was done before noon. The principal speakers were W. A. Cochel, of the Weekly Kansas City Star, and Dr. Bradford Knapp, President of the Oklahoma A. & M. College. A good sized delegation from the Oklahoma A. & M. College attended and County Agents came from nearby counties. The number of visitors was estimated from 600 to 1,200. The Field Day was a decided success.

Maximum temperature for the first half of September, 97 degrees on the 7th; minimum, 64 degrees on the 4th; precipitation, 0.08 inch on the 3rd.

#### KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker  
[September 15])

The following tables give the yields of winter wheat varieties grown in triplicate 40th-acre plats at the Agronomy Farm in 1927 as reported by Prof. S. C. Salmon. It will be noted that the highest yield per acre was made by Tenmarq, one of the winter x spring crosses, which seems to combine high yielding capacity, stiffer straw than Kanred, and excellent milling and baking qualities. Tenmarq, however, is much less winterhardy than Turkey, Kharkof, and Kanred but is as hardy or slightly more hardy than Blackhull. Kawvale, a selection from the old Indiana Swamp wheat, also made high yields and appears promising for eastern Kansas. Both Tenmarq and Kawvale are being included in cooperative experiments with Kansas farmers this fall.

Table 2 presents annual yields and nine-year averages of Kanred, Turkey, and Blackhull for the period from 1919 to 1927, inclusive. During this period there were no severe winters and very little trouble from winterkilling, and Blackhull has outyielded both Turkey and Kanred by a good margin. Kanred has made somewhat higher yields than Turkey during the same period.

Table 3 presents four-year average yields from the period from 1924 to 1927, inclusive, for Blackhull, Kanred, Tenmarq, Kanmarq, and two other winter x spring crosses. Tenmarq has the highest average yield for this period. Marquis x Kanred 443 and Kanmarq have yielded the same as, or a little more than, Blackhull, and all four of the winter x spring wheat crosses have yielded more than Kanred.

Table 1. Yields of winter wheat varieties grown on the Agronomy Farm, Manhattan, Kans., in 1927

Variety	: C.I.:Kans.:	Yield (Bu. per acre)
	: Rank: No.: No. :	
Tenmarq	: 1:6936: 439 :	47.5
Fulcaster*	: 2:6471: 317 :	44.0
Kawvale*	: 3:8180:2593 :	43.8
Kanmarq	: 4:6937: 440 :	43.0
Marquis x Kanred	: 5:-----: 443 :	41.4
Hussar	: 6:4843: 353 :	41.3
Blackhull	: 7:6251: 343 :	41.1
Superhard	: 8:8054: 470 :	40.5
P-1066 x Marquis	: 9:-----: 442 :	40.3
Nebraska No. 28*	: 10:5147: 34 :	38.4
Iobred	: 11:6934: 431 :	35.5
Kharkof	: 12:2193: 382 :	35.3
Sherman	: 13:4430:2520 :	34.9
P-1068, Selection	: 14:5880:2414 :	34.8
Kanred (Average of all checks)	: 15:5146:2401 :	34.7
Shepherd*	: 16:6163: 435 :	34.4
Harvest Queen*	: 17:6199: 19 :	33.7
Nebraska No. 6	: 18:6249: 321 :	33.2
Improved Turkey	: 19:5592:2382 :	32.5
Turkey	: 20:1558: 570 :	32.4
Zimmerman*	: 21:6211:2084 :	31.5
Newturk	: 22:6935:2536 :	31.4
Currell*	: 23:3326: --- :	30.7
Altera	: 24:5797:2048 :	30.7
Hard Winter Defiance	: 25:-----:2061 :	29.2
Regal	: 26:7364: 392 :	25.5

\*Soft wheat

Table 2. Yields of Kanred, Turkey and Blackhull wheats grown on the Agronomy Farm, Manhattan, Kans., for the 9-year period 1919 to 1927, inclusive.

Variety	: C.I.:Kans.:	: No.: No. :	: 1919:1920:1921:1922:1923:1924:1925:1926:1927: Average
Kanred	: 5146: 2401:20.7:31.2:33.3:37.1:36.1:34.0:39.0:36.3:35.5:		33.7
Turkey	: 1558: 570:20.8:29.3:31.0:37.1:35.9:32.8:34.5:34.7:32.4:		32.1
Blackhull	: 6251: 343:25.7:32.4:33.1:36.4:41.9:37.5:37.4:34.1:41.1:		35.5



Table 3. Yields of Kanred, Blackhull, and Winter x Spring wheat crosses grown on the Agronomy Farm, Manhattan, Kans., during the 4-year period 1924 to 1927, inclusive

Variety	: C.I.:	Kans.:	:	:	:	:	:
	: No.:	No.:	1924*:	1925:	1926:	1927:	Average
Tenmarq	: 6936:	439:	35.7:	41.4:	37.9:	47.5:	40.6
Marquis x Kanred	: ----:	443:	38.5:	36.4:	35.5:	41.4:	38.0
Kanmarq	: 6937:	440:	37.6:	35.6:	33.6:	43.0:	37.5
Blackhull	: 6251:	343:	37.5:	37.4:	34.1:	41.1:	37.5
P-1066 x Marquis	: ----:	442:	38.1:	37.7:	31.5:	40.3:	36.9
Kanred	: 5146:	2401:	34.0:	39.0:	36.3:	35.5:	36.2
	: :	:	:	:	:	:	:

\*Single plats, only

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C.O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)  
(September 15)

Since September 6 high temperatures and much wind of a drying nature have prevailed. For this section this has been beneficial for sorghums and row crops have been brought nearer to maturity and farmers have been able to complete the preparation of their land for wheat. However, late sorghums and corn will suffer somewhat from the dry weather.

In a normal season sorghums on the Cereal Project usually are all harvested at this date. This year the earliest varieties, such as Dwarf Freed and Shantung Kaoliang, have just matured. Other varieties will follow soon, however, so that the spread between the earliest and latest varieties as to maturity will not be so great this year. The yield of all row crops will be relatively high.

The following yields of spring oats were obtained on the Cereal Project this year. They are the average of two replicated plats.

Variety	C.I.No.	Yield (Bu. per acre)
Kherson	459	33.6
Richland	787	29.7
Sixty-Day	165	29.3
Iogold	2329	27.4
Burt 916	2054	26.2
Red Rustproof	953	25.4
Burt (original)	293	25.0
Ferguson No. 71	1039	24.2
Gopher	2027	23.4

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield (Bu. per acre)</u>
Continued		
Albion	729	23.1
Fulghum (H. C. No. 713)	---	22.7
Fulghum	708	21.9
Frazier	2381	21.5
Kanota	839	21.1
Fulghum (H. C. No. 74)	---	20.7
Fulghum (H. C. No. 71)	---	19.2

All strains and selections of the Fulghum type of oats made the lowest yields this year as compared with other varieties. In other years the Fulghum strains almost invariably have been in the lead. All Fulghum strains suffered from a very heavy epidemic of stem rust which caused them to lodge and to fill poorly.

In the Hays report in the Cereal Courier of August 20 the yield of Nebraska No. 60 winter wheat (C. I. No. 6250) is given as 9.6 bushels and that for Nebraska No. 6 (C. I. No. 6249) as 8.2 bushels. The yields for these two varieties should be reversed.

#### COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

#### NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague) (September 16)

Aside from the uniform winter-hardiness nursery, no fall wheat has been sown here yet. All the seed for sowing the nursery has been packeted, and that for the varietal plats has been treated with copper carbonate, preparatory to seeding. Fall seeding probably will be started next week. Seed beds are in almost ideal condition for seeding.

The maximum temperatures recorded since September 1 were 94 degrees on the 8th, and 93 degrees on the 9th, 10, and 12th. The minimum temperatures were 52 degrees on the 15th and 54 degrees on the 2nd and 5th. The precipitation for the first 15 days of September was 2.20 inches. Of this 2.16 inches fell as one rain on September 6. This record is 1.00 inch more than the average for the whole month of September.

Tables presenting the yields obtained from varieties of winter wheat, spring wheat, oats and barley grown at the Substation in 1927 are given herewith.

Yields of varieties of winter wheat grown in four 40th-acre plats at the North Platte Substation in 1927.

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per acre)</u>
Blackhull	6251	34.3
Tenmarq	6936	33.6
Kanmarq	6937	33.3
Marquis x Kanred 449	----	32.3
Montana 36	5549	32.3
Nebraska No. 6	6249	30.8
Turkey (Local)	----	30.3
Marquis x Kanred 441	----	30.1
Kharkof	1442	29.3
Karmont	6700	29.8
Regal	7364	29.8
Nebraska No. 30	7358	29.1
Kanred	5146	29.0
Hussar	4843	29.0
Awnless Sel. from Nebraska No. 28	----	28.3
Nebraska No. 60	6250	28.1
Newturk	6935	28.1
Beloglina	1543	27.6
Turkey	7363	27.2
Sherman	4430	26.7
Minturki	6155	22.8
Nebraska No. 28	5147	16.0

Yields of varieties of spring wheat grown in four 40th-acre plats at the North Platte Substation in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per acre)</u>
Akrona	6881	23.6
Ceres	6900	23.3
Garnet	8181	23.0
Reliance	7370	22.6
Marquis	3641	21.8
Nodak	6519	21.5
Kubanka	1440	21.3
Marquillo	6887	21.3
Hard Federation	4733	17.5
Java (Kearney Co.)	----	16.8
Progress	6902	16.7
Quality	6607	16.0
Kota	5878	15.2
Ruby	6047	13.5

Yields of varieties of oats grown in three 40th-acre plats at the North Platte Substation in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per acre)</u>
Iogold <sup>1/</sup>	2329	60.0
Burt x Sixty-Day	727	59.4
Burt (Nebraska No. 4)	2029	57.9
Burt 916	2054	57.8
Kherson	459	57.6
Iowar	847	57.1
Colburt	2019	56.9
Fulghum	708	51.6
Burt (original)	293	50.7
Markton	2053	46.9
Ferguson No. 71	1039	46.0
Nebraska No. 21	841	45.9
Frazier	2381	45.4

<sup>1/</sup>

Iogold was grown in two plats only

Yields of varieties of barley grown in three 40th-acre plats at the North Platte Substation in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per acre)</u>
Smyrna	2642	45.4
Butler	4589	41.9
Coast	690	41.1
Cape Coast Hybrid	4654	40.4
Trebi	936	40.0
McClymont	2126	39.1
Comfort	4578	39.0
Sandrel	937	38.1
Mechanical Mixture	4115	38.1
Snyder	4588	37.5
Six-Row Common	4640	37.3
Composite Cross	4116	35.9
Colsess	2792	35.4
Club Mariout	932	34.6
Blackhull	878	34.4
Minnesota No. 184	2330	32.1
Hannchen	531	30.2
Himalaya	620	30.0
Velvet	4252	29.6

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

# WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)



## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus) (September 16)

The weather during the last half of August has been very favorable for threshing. The first part of September has been warm with highest temperature for the season, 93 degrees, recorded on September 13. The minimum was 44 degrees on September 2 and 15. The precipitation for this period was 0.45 of an inch.

Threshing of the varietal plats of wheat, oats, and barley and the triple rod rows replicated three times in the nursery has been completed. Average yields of grain for these experiments have been calculated. Yields of wheat, oat, and barley in the varietal plats and the triple rod rows replicated three times in the nursery are presented in Tables 1, 2, 3, and 4.

Seventy-one varieties and hybrid strains were grown in the nursery. The yields were determined from the average of the center rows. The border rows were left standing after the grain had become fully ripe in order to determine later the percentage of shattering and lodging, in connection with combine or harvester-thresher studies.

The yields obtained, together with the date of first heading, and percentage of both leaf and stem rust are presented in Table 4. There was a heavy infection of both leaf rust and stem rust this year, both rusts doing considerable damage. J. Allen Clark, agronomist in charge of western wheat investigations, assisted in taking notes on both rusts. In general, the yields decreased with the increase of rust. The yields of Kota wheat apparently were reduced more from leaf rust than were the yields of Marquis from stem rust. Hybrid strains from these two varieties, which had marked resistance to both rusts, outyielded the parents approximately one-third. Durum varieties and hybrids, and strains of hard red spring, such as Kota-Webster H-151-25, Hope, and Marquillo, which also had resistance to both rusts, were among the highest yielding. Earliness, as indicated by date of first heading, was not an advantage in escaping either rust, and the yields of most of the early varieties and hybrid strains were comparatively low.

Table 1. Average yields of spring wheat varieties grown in replicated 50th-acre plats at the Northern Great Plains Field Station, Mandan, N. Dak., in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Hybrid No.</u>	<u>Yield (Bu. per acre)</u>
<u>Common</u>			
Marquis x Kota	8004	Nsl656.84	19.7
Ceres	6900	----	18.6
Kanred x Marquis	----	1718B8-11-22	17.1 <sup>a/</sup>
Do	8018	11-17-40	17.0
Preston	3081	----	16.7
Reliance	7370	----	16.6
Marquis	3641	----	15.4
Marquillo	6887	----	15.1
Power	3697	----	14.6
Kota	5878	----	12.3
Red Bobs	6255	----	10.7
Garnet	8181	----	9.6
Ruby	6047	----	7.6
Quality	6607	----	7.5
<u>Durum</u>			
Kubanka	1440	----	21.5
Nodak	6519	----	21.0
Mindum	5296	----	19.6
Mondak	7287	----	18.1
Monad	3320	----	18.0
Akrona	6881	----	16.3

<sup>a/</sup>

Duplicated plats only

Table 2. Average yields of oat varieties grown in triplicate 50th-acre plats at the Northern Great Plains Field Station, Mandan, N. Dak., in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per acre)</u>
Green Russian (N.Dak.No. 20014)	2343	60.0
Iogren	2024	32.2
Sixty-Day	165	31.9
Gopher	2027	31.5
Victory	560	29.7
Lincoln	738	28.1
Siberian	741	26.6
Markton	2053	26.3
Swedish Select	134	24.5
Liberty Hullless	845	16.7

Table 3. Average yields of barley varieties grown in triplicate 50th-acre plats at the Northern Great Plains Field Station, Mandan, N. Dak., in 1927

Variety	C.I. No.	Yield (Bu. per acre)
Orel	351	26.8
Horn	926	24.6
Trebi	936	21.3
Odessa	182	20.5
Hannchen	551	19.4
Alpha	959	18.2
Meloy	1176	16.2
Featherston	1120	12.3

Table 4. Average date of first heading, percentage of leaf and stem rust and yield in bushels per acre, of 71 varieties and hybrids of wheat grown in triplicate rod rows, replicated three times at the Northern Great Plains Field Station, Mandan, N. Dak., in 1927

Variety or cross	C.I. No.	First heading	Leaf Rust Per cent	Stem Rust Per cent	Yield (Bu. per acre)
Kubanka No. 8 x Pentad	367	7-5	0	T	42.0
Nodak	6519	7-5	0	2	39.0
Marquis x Kota 1656.97	8005	7-3	3	10	36.5
Kota x Webster H-151-25	---	7-4	5	5	36.0
Pentad	3322	7-5	0	T	35.4
Kubanka No. 8 x Pentad	880	7-5	0	T	35.2
Mindum x Pentad	881	7-5	0	7	34.8
Marquis x Kota 1656	6893	7-1	15	12	34.1
Mindum	5296	7-6	0	13	34.0
Marquis x Kota 1656.84	8004	7-3	10	7	33.3
Do 1656.81	8185	7-1	3	3	33.1
Do 1656.99	8187	6-29	5	10	32.8
Kubanka	1440	7-6	T	8	31.6
Marquis x Kota 1656.109	8006	7-1	5	12	31.0
Ceres	6900	7-1	10	23	30.8
Mondak	7287	7-5	1	13	30.3
Hope	3173	7-6	T	0	29.2
Marquis x Kota 1656.169	8183	7-2	5	22	28.0
Progress	6902	7-1	50	17	27.1
Kanred x Marquis B9-11-48	---	7-3	5	67	26.7
Kota-Hard Fed. x Kanred-Marquis	356	7-4	10	22	25.9
Garnet	3181	6-28	5	27	25.0
Marquis x Kota 1656.83	3186	7-2	15	7	24.9
Marquillo	6837	6-28	2	5	24.5
Kota x Kanred	620	7-5	10	20	23.7
Kota-Hard Fed. x Kanred-Marquis	355	7-1	15	23	23.3
Do	625	7-1	35	25	23.1
Kanred x Marquis B8-11-7	13	7-3	15	57	23.0
Marquis (Sask. No. 70)	---	7-3	5	60	22.8

Continued

Variety or cross	:C.I.: :No.:	:Nur-:sery: :No.:	:First: :head-: :ing	Rust		:Yield :(Bu. per acre)
				Leaf	Stem	
				:Per cent:	:Per cent:	
Marquis (average of 9 check rows)	:3641:	---	7-2	: 5	: 63	: 22.5
Kanred x Marquis B8-11-23	----	18:	7-5	: 10	: 52	: 22.3
Do II-18-44	:8019:	---	7-3	: 2	: 60	: 22.3
Do B9-11	:7371:	---	7-2	: 5	: 70	: 22.1
Do B8-11-63	----	21:	7-4	: 5	: 53	: 22.0
Do B2-14-1	----	2:	7-4	: 2	: 63	: 22.0
Supreme	:8026:	---	7-1	: 15	: 50	: 21.9
Reliance	:7370:	---	7-2	: 15	: 47	: 21.8
Kanred x Marquis B9-11-50	----	33:	7-2	: 2	: 65	: 21.7
Do B2-14-2	----	3:	7-6	: 2	: 72	: 21.3
Do II-17-40	:8018:	---	7-4	: 2	: 58	: 21.3
Kota	:5878:	---	7-3	: 70	: 10	: 21.1
Kota x Kanred	----	619:	7-3	: 50	: 17	: 20.7
Kanred x Marquis B8-11-16	----	14:	7-5	: 15	: 60	: 20.5
Do B5-14-3	----	471:	7-4	: 1	: 78	: 20.2
Do B8-11-22	----	17:	7-2	: 5	: 45	: 20.1
Do B8-11-40	----	20A:	7-3	: 5	: 57	: 20.1
Do II-18-48	:8191:	---	7-4	: 50	: 47	: 20.0
Marquis x Erivan	----	237:	6-30	: 70	: 20	: 20.0
Marquis x Kanred B8-11-29	----	19:	7-5	: 10	: 53	: 19.9
Kota x Hard Federation	----	345:	7-1	: 35	: 10	: 19.3
Do	----	328:	7-5	: 15	: 8	: 19.0
Kanred x Marquis B9-14-22	----	36:	7-3	: 5	: 67	: 19.0
Kota x Hard Federation	----	285:	7-1	: 50	: 5	: 18.8
Marquis x Erivan	----	238:	7-2	: 35	: 7	: 18.8
Kanred x Marquis B9-14-24	----	37:	7-2	: 25	: 68	: 18.7
Do B8-11-64	----	22:	7-6	: 5	: 57	: 18.7
Do B9-14-28	----	39:	7-4	: 20	: 63	: 18.1
Quality	:6607:	---	6-27	: 70	: 30	: 18.1
Kota x Galgalos	----	479:	7-3	: 65	: 17	: 17.2
Kanred x Marquis B9-14	:7372:	---	7-4	: 10	: 62	: 17.1
Do B2-14-20	----	11:	7-4	: 60	: 60	: 17.1
Do B2-14-18	----	9:	7-6	: 5	: 60	: 16.8
Kota-Hard Fed. x Kanred-Marquis	----	624:	6-30	: 60	: 25	: 16.7
Kanred x Marquis	----	41:	7-4	: 25	: 58	: 16.6
Kota x Hard Federation	----	303:	7-5	: 50	: 5	: 16.2
Kota x Kanred	----	351:	7-2	: 65	: 10	: 16.1
Kota x Hard Federation	----	295:	7-5	: 35	: 17	: 15.5
Do	----	311:	6-30	: 35	: 7	: 15.0
Kota-Hard Fed. x Kanred-Marquis	----	626:	7-1	: 50	: 47	: 14.5
Hard Federation	:4733:	---	6-28	: 50	: 37	: 13.2
Kota x Hard Federation <sup>1/</sup>	----	339:	6-28	: 35	: 7	: 9.3

<sup>1/</sup>First replication injured by trees



## MONTANA

Judith Basin Substation, Moccasin (Cereal Breeding, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W.L.Popham)

## WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell)

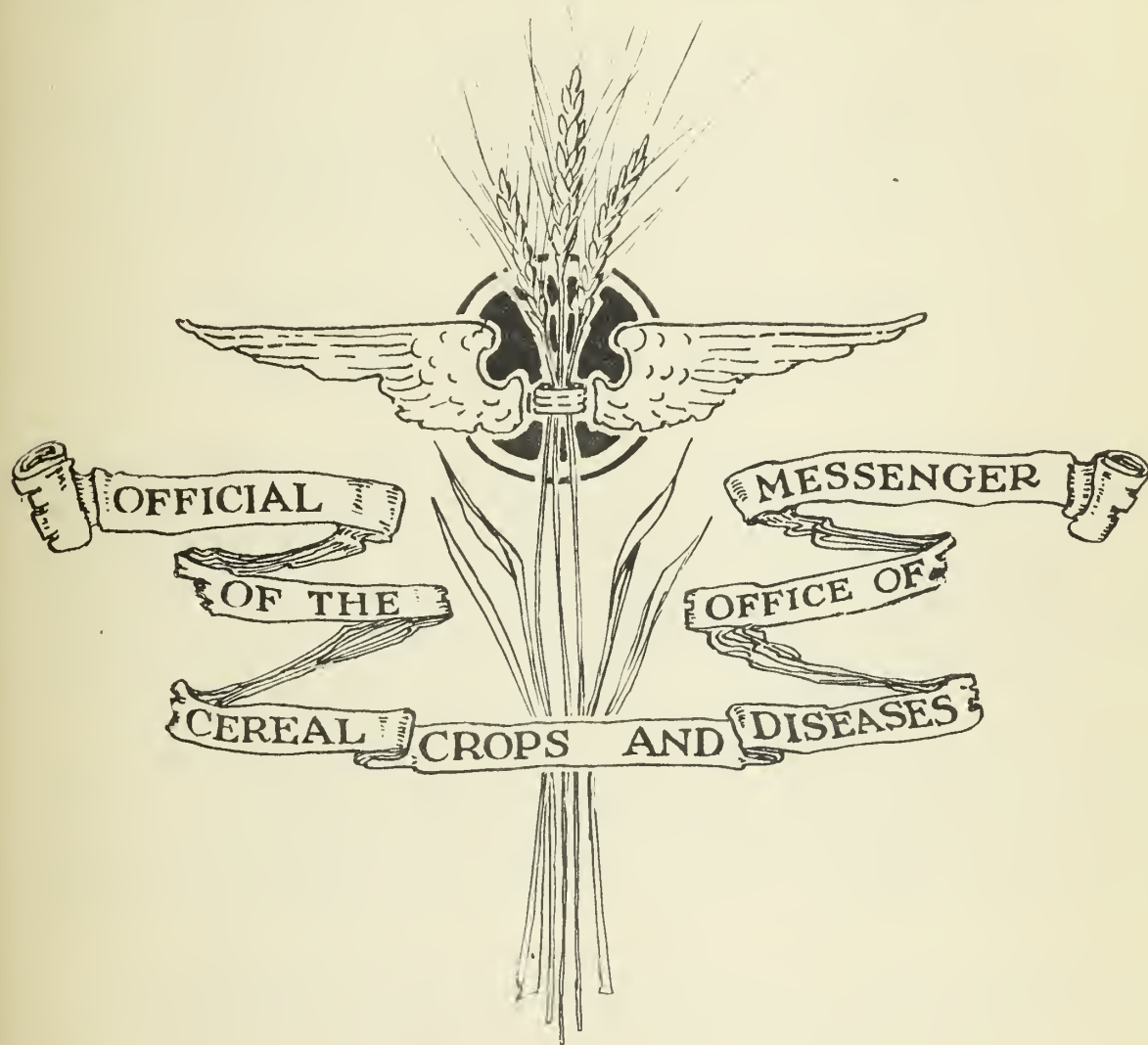
Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE





## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 19

No. 24

September 30, 1927  
Personnel (Sept. 21-30) and Project Issue

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### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, returned Saturday, September 24, from the Third Annual Conference of the International Corn-Borer Organization held in Ohio, Michigan, and Ontario. More than 150 took the field trips and a much larger number was present at the conference in Detroit on Friday, September 23. An outstanding feature of the conference was the hearty unanimity of opinion which seemed to prevail, resulting in the unanimous adoption, without discussion, of the report of the joint committee of entomologists, agronomists, and agricultural engineers.

Dr. Ball will leave Washington on September 27, by automobile, on a personal trip to Boston. While en route back to Washington he will visit the Connecticut and Massachusetts agricultural experiment stations, and the Boyce-Thompson Institute for Plant Research at Yonkers, N. Y., to confer on corn-borer research and other cereal matters. Dr. Ball expects to be back in Washington about October 3.

A. C. Dillman, associate agronomist in charge of flax investigations, left Washington September 26 for a five-weeks' trip in the South and Southwest to confer with officials of agricultural experiment stations, flaxseed producers, linseed crushers, and others interested in the production of flax seed. Mr. Dillman's itinerary includes Atlanta, Ga., San Antonio, Tex., Sacaton, Ariz., Bard, El Centro, Los Angeles and San Francisco, Calif., Portland, Oreg., and Seattle, Wash. On the return trip he will stop at Mandan and Fargo, N. Dak., and St. Paul, Minn., to confer with State and Federal officials in regard to cooperative flax experiments.

Dr. J. R. Holbert, agronomist in charge of investigations of corn root, stalk, and ear rots, in cooperation with Funk Bros. Seed Company, of Bloomington, Ill., arrived in Washington on September 24 for a conference with officials of the Office regarding the preparation of manuscripts for publication and the continuation of cooperative experiments.

Dr. J. H. Martin, associate agronomist in charge of grain sorghum and broomcorn investigations, who returned to Washington on September 26, reports that all grain sorghums are late this year owing to early summer droughts. The crop got a poor start but is in good condition now in most sections and will yield well if frosts hold off long enough to allow the crop to mature.

Probably the largest acreage of wheat ever sown in the Panhandle region and southwestern Kansas is now being put in.

On September 20 and 21, Dr. Martin traveled by automobile from Woodward, Okla., to Hays, Kans., with A. F. Swanson, of the Ft. Hays Branch Station. At the Garden City (Kansas) Station a new sorghum disease has destroyed about two-tenths of an acre of milo. The disease was previously reported from Chillicothe, Tex. About a thousand acres of Dwarf Freds sorghum are now being grown in the vicinity of Scott City, Kans. This variety was developed at the Ft. Hays Branch Station. In the section between Woodward, Okla., and Liberal, Kans., about 80 per cent of the grain sorghum acreage consists of Straight-neck milo.

Miss Margaret V. Paden, of Emporia, Kans., was appointed junior clerk-stenographer, effective September 20, to assist Dr. A. M. Brunson and Prof. J. H. Parker, who conduct cereal experiments for this Office at Manhattan, Kans. Miss Paden will fill the vacancy caused by the resignation of Miss Lola J. Graham, effective September 1.

F. D. Richey, agronomist in charge of corn investigations, returned to Washington on September 24.

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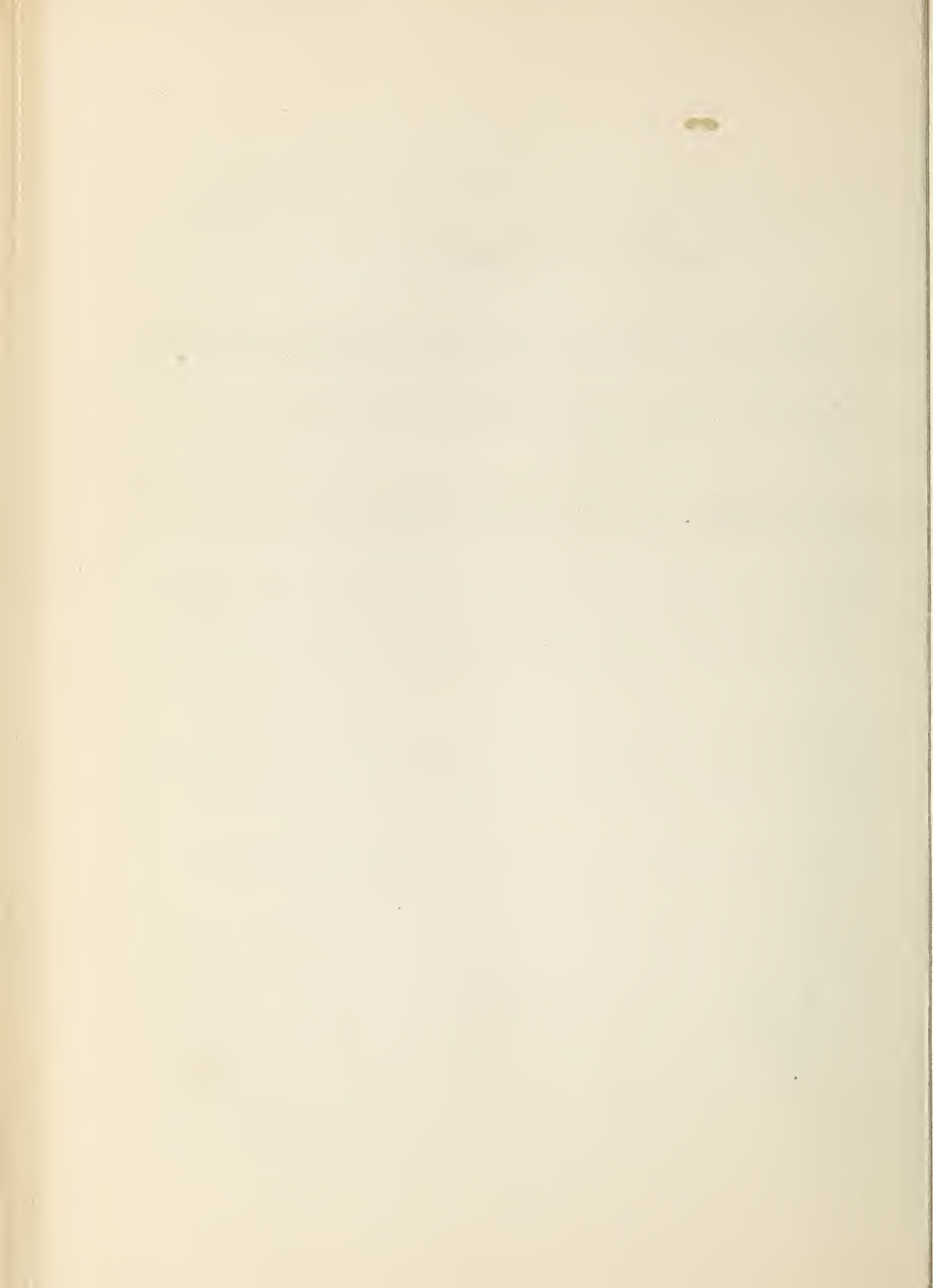
MANUSCRIPTS AND PUBLICATIONS

Galley proof of article entitled "Soil Factors Influencing the Development of the Mosaic Disease in Winter Wheat," by R. W. Webb, for publication in the Journal of Agricultural Research, was read September 27.

Galley proof of article entitled "Comparative Studies of Winter Hardiness in Wheat," by J. H. Martin, for publication in the Journal of Agricultural Research, was read September 29.

The article entitled "The Convergent Improvement of Selfed Lines of Corn," by Frederick D. Richey, appears in The American Naturalist 61 (676): 430-449. September-October, 1927.

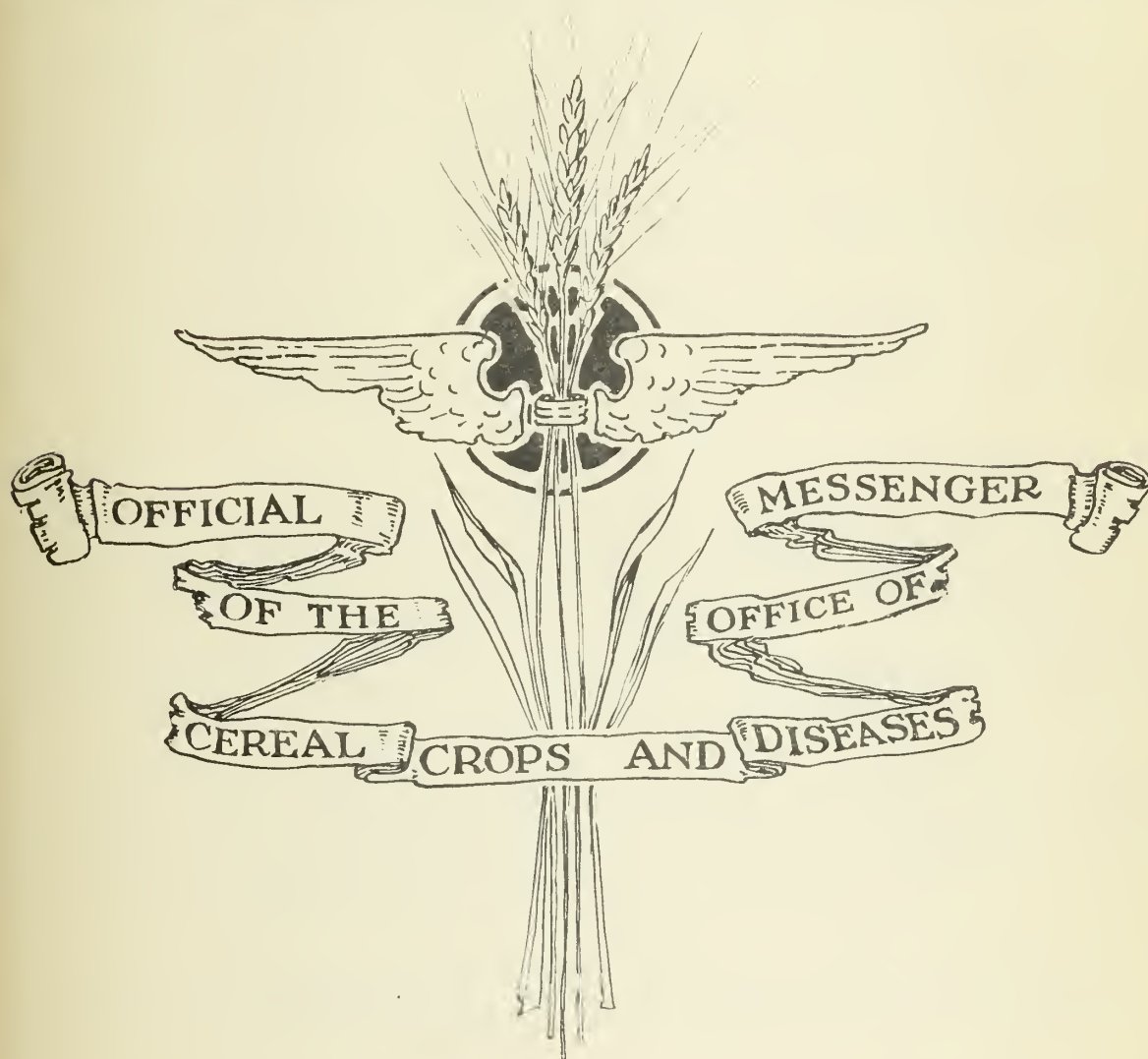
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CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

THE UNIVERSITY OF CHICAGO



THE UNIVERSITY OF CHICAGO

## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 19

No. 25

October 10, 1927

Personnel (October 1-10) and Field Station (Sept. 16-30) Issue

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### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, returned to Washington on October 6, having spent nine days in New England and in New York State. He visited the United States Entomological Laboratory at Arlington, Mass., where he saw the extensive investigations conducted by D. W. Jones in breeding corn-borer parasites; by Dr. C. H. Batchelder in testing the attractiveness of certain chemical substances to corn-borer moths; and the field experiments of B. E. Hodgson in growing corn under borer conditions.

At the Market Garden Field Station of the Massachusetts Agricultural Experiment Station, at Waltham, Mass., Dr. Ball saw the corn-borer researches being carried on cooperatively with the U. S. Bureau of Entomology on field experiments in growing corn and on the ability of the corn borer to maintain itself over periods of years on host plants other than corn.

At the Massachusetts Agricultural College at Amherst, corn-borer investigations were discussed with Director S. B. Haskell, and the field plats were visited with Dr. A. B. Beaumont, head of the department of agronomy.

A very pleasant call was made on President R. W. Thatcher, until recently Director of the New York State Agricultural Experiment Station and the Cornell University Agricultural Experiment Station.

At the Boyce Thompson Institute for Plant Research, Yonkers, N. Y., the cooperative research in chemical substances which may be repellent or attractive to the corn-borer moth was discussed with Dr. John M. Arthur, in whose department it is being done, and M. E. Ryberg, biochemist of the U. S. Bureau of Entomology, who is conducting the research. This is another portion of the research under Dr. C. H. Batchelder at the U. S. Entomological Laboratory at Arlington, Mass., mentioned above.

Charles E. Chambliss, associate agronomist in charge of rice investigations, returned to Washington on October 4 after a six weeks' trip in the interests of rice investigations. Mr. Chambliss spent 25 days in investigational work at the Rice Experiment Station, Crowley, La. In Illinois Mr. Chambliss found the rice crop doing well. Yields will be high in that State if the weather continues favorable throughout October. In the Elsberry district of Missouri the rice acreage this year is about 2,500. Last year about 9,000 or 10,000 acres were seeded. The decrease is due to the continuous rains in the spring. It was the expectation to seed about 19,000 acres this year in Missouri.

Dr. S. M. Dietz, associate pathologist in the cereal disease investigations conducted at Ames, Iowa, in cooperation with the Iowa Agricultural Experiment Station, resigned his position on September 19 in order to become assistant professor of plant pathology at the Iowa State College.

J. M. Hammerly, senior scientific aid in corn investigations, will go to Florence, S. C., on October 15 to harvest cooperative experimental plats of corn. He will be away about a week.

L. D. Hutton, associate pathologist in barberry eradication, and H. S. Smith, junior administrative assistant, returned to Washington October 7 from a field inspection trip of States in the barberry-eradication area. After conferences with the State Leaders of Nebraska, South Dakota, and North Dakota, they joined a group composed of the following State Leaders: J. W. Baringer, Ohio; W. F. Reddy, Michigan; W. E. Leer, Indiana; G. C. Curran, Illinois; W. A. Walker, Wisconsin; P. W. Rohrbaugh, Iowa; and L. W. Melander, Minnesota. Accompanying this party also were G. D. George, University Farm, St. Paul, Minn., and D. G. Fletcher, Secretary of the Conference for the Prevention of Grain Rust, of Minneapolis. The party made a field trip through the States of Minnesota, Iowa, Illinois, Wisconsin, Michigan, Indiana, and Ohio, studying types of territory, areas in which barberries grow, methods of survey, and methods of eradication within each State. Conferences relative to education and publicity, office and field efficiency, and fiscal matters were held in connection with the trip. Discussions also were held relative to necessary research problems and the placing in operation of certain experiments which will work toward the solution of these problems.

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## MANUSCRIPTS AND PUBLICATIONS

56 A manuscript entitled "Differential Staining of Specialized Cells in Begonia with Indicators," by Dean H. Rose and Annie M. Hurd-Karrer, was approved on September 30 for publication in the Journal of Physiology.

57 A manuscript entitled "Distribution of the Classes and Varieties of Wheat in the United States," by J. A. Clark, J. H. Martin, K. S. Quisenberry, J. R. Hooker, C. E. Leighty and C. DuBois, was submitted on October 1 for publication as a Technical Bulletin.

Galley proof of article entitled "Factors Affecting the Popping Quality of Pop Corn," by J. G. Tillier and Arthur M. Brunson, for publication in the Journal of Agricultural Research, was read October 5.

The article entitled "A Study of Growth Habit and Rust Reaction in Crosses between Marquis, Kota, and Kanred Wheats," by Olaf S. Aamodt, appears in Phytopathology 17 (9): 573-609, figs. 1-2. September, 1927. (Cooperation between the Office of Cereal Crops and Diseases and the department of agriculture of the University of Minnesota.)

Technical Bulletin No. 10 entitled "The Productiveness of Corn as Influenced by the Mosaic Disease," by Hugo F. Stoneberg, was received from the Government Printing Office on October 7, bearing date of August, 1927. (p. 1-18, figs. 1-7.) (Cooperation between the Office of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

The article entitled "Inheritance of Winter Hardiness and Growth Habit in Crosses of Marquis with Minhardi and Minturki Wheats," by H. K. Hayes and O. S. Aamodt, appears in the Journal of Agricultural Research 35 (3): 223-236. August 1, 1927. (Received October 10.) (Cooperation between the Office of Cereal Crops and Diseases and the section of plant breeding of the Minnesota Agricultural Experiment Station.)

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# FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)  
(October 8)

Wheat seeding is being delayed because of the frequent rains. Barley and oats were sown the latter part of September, and the seedlings are emerging very irregularly. The use of the barley plats two days after seeding as a landing field by an aviator having engine trouble has increased the mechanical mixture of varieties.

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

### LOUISIANA

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, -----)

Iowa State College, Ames (Barberry Eradication, P. W. Rohrbaugh)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)  
(September 26)

In September a number of agents resigned in order to resume their studies at college. The second survey of Lake, DuPage, Stephenson, and Jo Daviess counties was discontinued. About 12 men remain on the force, and the second survey is being continued in LaSalle, Kane, McHenry, and Ogle counties.

A large number of excellent photographs have been taken this season. One of the agents, John W. Weber, is an experienced commercial photographer and has taken more than 200 5 x 7 photographs. These pictures illustrate every phase of barberry eradication, and a person examining these pictures is convinced at once that much progress has been made. The photographs can be used in the future for making up demonstrations and other publicity material. The taking of so many excellent views can be considered one of the outstanding achievements of the campaign in Illinois this summer.

Three large hedges of common barberry were destroyed recently on the outskirts of Moline, in an out-of-the-way section. A barberry survey was made of Moline in 1923. Cases of this kind should convince everyone that every possible precaution must be taken to prevent scouts from missing barberry plantings. A tractor concern in Moline furnished a tractor free of charge for use in pulling out the barberry hedges.

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts,  
H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication,  
W. E. Leer)

#### OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication,  
J. W. Baringer)

#### MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

#### WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication,  
W. A. Walker)

#### MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding,  
O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust,  
E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust,  
Chi Tu, Acting in Charge)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication,  
L. W. Melander)

#### GREAT PLAINS AREA (South to North)

#### OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)



## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellow)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston) [September 27]

The writer accompanied Prof. John H. Parker on a motor trip through central and southern Kansas and northern Oklahoma on September 17 to 19, inclusive. A careful observation of fields along the road between Manhattan, Kans., and Stillwater, Okla., failed to reveal the presence of any volunteer wheat on which leaf rust might have oversummered. Fields between Stillwater and Enid, Okla., also seemed to be free from volunteer wheat. This is a different situation from that of last fall, when a great deal of volunteer wheat was present in southern Kansas and northern Oklahoma and leaf rust was prevalent.

From Stillwater, we proceeded to Woodward, Okla., where the U. S. Field Station was visited on September 19. Crops at that station were in excellent condition, the sorghums making a very fine showing. No experimental work with wheat is in progress at the Woodward station although considerable wheat is grown in that vicinity.

From Woodward, the writer proceeded to Harper, Kans., where a large leaf rust nursery was sown on September 20 and 21. It was very dry in that part of Kansas and it was necessary to sow wheat in a seed bed of dry dust. The preparation of the wheat seed bed and fall sowing in most parts of southern Kansas have been greatly delayed by recent dry weather.

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague) (October 1)

The first killing frost (31 degrees F.) occurred on September 20. Heavier frosts since then have killed much vegetation, including corn and sorghum. Corn was somewhat immature but was not seriously damaged. The yield of sorghum probably was reduced 75 per cent.

Fall seeding is completed. We are now gathering the selfed lines of corn and also the crosses among the selfed lines. Corn will yield well here this year.

The last 15 days of September were very cloudy and damp. There were nine cloudy days, and precipitation was recorded on five days. The precipitation recorded for the whole month was 3.42 inches, as compared to 1.20 inches the normal for the month. Minimum temperatures recorded for the month were 94 degrees on the 8th, and 93 degrees on the 9th, 10th, and 12th. The minimum temperatures were 29 degrees on the 26th and 30 degrees on the 25th.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (October 1)

Frequent showers in September have delayed threshing at the Substation and throughout the State. Threshing in this vicinity probably is about two thirds done. Threshing at the Substation is completed except for miscellaneous plant rows in the nursery.

Yields in general are good, spring wheat yields ranging from 10 to 25 bushels. Higher yields are reported in some cases. Considerable damage from rust is reported in late sown spring wheat and in fields injured by hail.

The corn crop is unusually good. However, it was somewhat later than usual and growth was stopped by killing frost on September 20.

The plats of winter wheat sown in standing corn emerged with good stands but were injured somewhat by grasshoppers. The winter wheat nursery is just emerging.

The maximum temperature for the month was 90 degrees on September 5; minimum, 23 degrees on September 27. The total precipitation for the month was 1.54 inches.

The acre yields of spring and winter wheat varieties grown in plats are presented in the following table. Evidently rust resistance was an important factor in the yields obtained. The hailstorm on June 19 caused considerable injury to winter wheat and to the earliest spring varieties.

Yields of spring-wheat varieties grown in quadruplicated 56th-acre plats at the Dickinson Substation, Dickinson, N. Dak., in 1927

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield</u> <u>(Bu. per Acre)</u>
<u>Common</u>		
Marquis x Kota (1636.97)	8005	26.4
Do (1636)	6898	25.4
Ceres	6900	24.2
Marquis x Kota (1636.84)	8004	24.2
Preston	3081	20.5
Reliance	7370	19.5
Kota	5378	18.5
Progress	6302	18.3
Marquis	3641	18.2
Marquis x Kenred B 9-11	7371	17.8
Marquillo	6887	17.4
Haynes Bluestem	2874	16.9
Garnet	3181	16.2
Power Five	3697	15.9
Supreme	8026	15.7
Red Five	3329	14.5
Ruby	6047	13.4
Quality	6607	13.3
Red Bobs	6255	11.9
Hard Federation	4733	5.5
<u>Durum</u>		
H-132	----	26.5
Monad	3320	25.9
Pentad	3322	25.3
Mindum	5296	24.3
Kubanka	1440	24.2
Akrona	6801	24.1
Nodik	6519	24.0
Mendak	7287	23.9
Kahla	5329	22.2
Nohola	8025	19.8

Yields of winter-wheat varieties grown in duplicated 40th-acre plats at the Dickinson Substation, Dickinson, N. Dak., in 1927

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield (Bu. per Acre)</u>
Turkey	1571	17.6
Kharkof	1583	11.7
Karmont	6700	11.6
Minturki	6155	11.0
Kanred	5146	9.7
Beloglina	1543	9.1
Minhardi	5149	8.4
Buffum No. 17	3330	8.1

Northern Great Plains Field Station, Mandan (Flex Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Auseman)

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)  
(September 21)

Threshing of the spring-wheat plats will be finished the end of the week. The field work is almost cleaned up with the exception of harvesting White Marquis wheat, which is still rather green.

There was a frost on the night of September 15, the thermometer registering 26 degrees. It still is too soon to tell just how much damage was done to spring wheat in the Judith Basin. There are yet many green fields.

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

#### WESTERN BASIN AND COAST AREAS (North to West and South)

#### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

#### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)



## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (September 1

The maximum and minimum daily temperatures during the first half of September were below normal and rather unfavorable for the development of the rice crop. With temperatures below normal and a good deal of dry north wind during the blooming period of the midseason varieties there probably will be more blighted rice than usual. We have had a few nights with temperatures of 44 and 45 degrees which of course is unfavorable for fertilization even though the flowers have been pollinated. There may be a loss due to blighting and improper filling of from 5 to 15 per cent of the crop that has bloomed during the unfavorable weather conditions. Much of the commercial rice had bloomed and begun to set seed before the cool weather and wind occurred, and this rice will not be damaged.

On the station most of the early maturing rices are now ripe; the mid-season varieties are well turned down and starting to ripen; and the late varieties are fully headed. Except for the varietal experiments and nursery, we have drained the land for harvest. With favorable weather we should be able to start harvesting about October 1.

The annual Rice Day was held at Richvale on September 14 and about 100 people were present. About 80 people visited this station in the afternoon as part of the program. The annual Rice Day at Cortona was held September 16 and there was a fairly good attendance at the meeting.

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

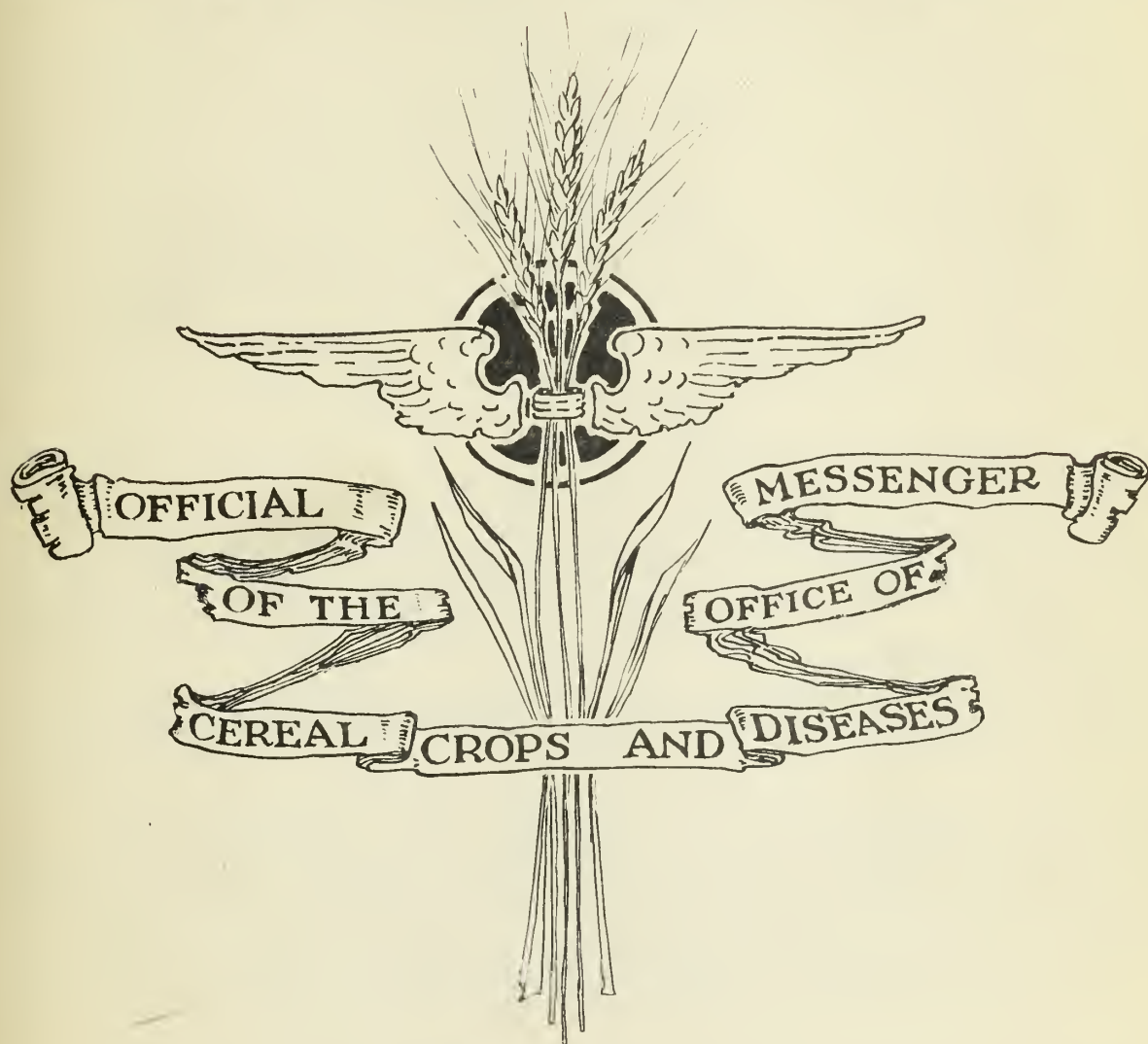
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# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

# FEDERAL COURTS



THE FEDERAL COURTS  
OF THE UNITED STATES  
OF AMERICA



## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 19

No. 26

October 20, 1927

Personnel (Oct. 11-20) and Field Station (Oct. 1-15) Issue

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### PERSONNEL ITEMS

G. C. Curran, associate pathologist, who has been State Leader of barberry eradication in Illinois since February, 1922, resigned his position on October 15 to accept a commercial position. Before assuming this he has gone abroad for a brief trip.

Allan D. Dickson was appointed agent on October 19 to assist with field and laboratory experiments in the cooperative cereal-disease experiments conducted at Madison, Wis.

Dr. A. G. Johnson, senior pathologist in charge of cereal-disease investigations, left Washington on October 19 to travel in Indiana, Illinois, Missouri, Kansas, Nebraska, Iowa, and Wisconsin, to inspect corn fields for diseases and to confer with officials of agricultural experiment stations. He will be accompanied by Dr. J. R. Holbert in Missouri, Kansas, Nebraska, Wisconsin and Iowa, and by Dr. James G. Dickson in Missouri, Kansas and Nebraska. Dr. Johnson will return to Washington about November 5.

M. A. McCall, agronomist in charge of cereal agronomy investigations, left Washington on October 14 for a month's trip in Tennessee, Louisiana, Texas, Arizona, California, Oregon, Washington, Idaho, Montana, Nebraska, Kansas, Iowa, Wisconsin, Illinois, and Indiana, to consult with office employees and officials of the agricultural experiment stations regarding plans for and progress of cooperative cereal experiments and to inspect cooperative work now being done.

Herman A. Rodenhiser was appointed agent, effective October 1, to assist with investigations of flax diseases, especially rust, that are being conducted at University Farm, St. Paul, Minn., in cooperation with the Minnesota Agricultural Experiment Station and the Office of Fiber Plants, of the Bureau of Plant Industry. Mr. Rodenhiser succeeds Dr. A. W. Henry, who resigned September 30, 1926.

#### VISITORS

C. T. Nolan, Chairman of the Flax Development Committee, of the National Paint, Oil, and Varnish Association, was a caller in the Office on October 15 to obtain information on the status and prospects of the 1927 flax crop for use in his annual report.

Dr. Giulio Savastano, of the Royal Agricultural Station, Acireale, Italy, called at the office on October 15. He had but recently returned from a several months' sojourn in the laboratories of the Citrus Experiment Station at Riverside, Calif. Dr. Savastano has been in the United States two years, during which time he has been conducting research on plant-pathologic problems.

Dr. G. P. Darnell-Smith, Director, The Botanic Garden, Sydney, N. S. W., Australia, was an Office visitor on October 7. While here, he talked informally and very interestingly to twenty or more Bureau workers interested in problems of plant pathology and agronomy. He has been traveling in the United States and Canada chiefly in the interests of tobacco culture.

Prof. H. B. Walker, head of the department of agricultural engineering in the Kansas Agricultural College, was an Office visitor on October 15. Prof. Walker is engaged in a special study of the organization and scope of agricultural engineering research in the United States under the auspices of the Division of Agricultural Engineering of the Bureau of Public Roads and came to consult with Dr. C. R. Ball on the general principles and practice of cooperation in research.

Dr. S. J. Wellensiek, Plant Pathologist, Landbouwhoogeschool, Inst. v. Phytopathologie, Wageningen, The Netherlands, was an Office visitor October 8 to 10. He and Mrs. Wellensiek were on their way to their home in The Netherlands after spending a year in St. Paul, Minn., where Dr. Wellensiek, the recipient of an International Education Board fellowship, carried on research in the University of Minnesota under the direction of Dr. E. C. Stakman.

### MANUSCRIPTS AND PUBLICATIONS

The following seven manuscripts have been approved for publication in the 1927 Yearbook of the Department of Agriculture:

- 58 Testing Cornstalks Chemically to Aid in Determining Their Plant Food Needs, by G. N. Hoffer.
- 59 Dent Corn Seed Treatment in Commercial Practice, by J. R. Holbert.
- 60 Barberry Eradication to Control Stem Rust, by L. D. Hutton.
- 61 New Methods of Harvesting and Threshing Grain Sorghums, by J.H.Martin.
- 62 Making the Flax Crop Safe from Diseases, by E. C. Stakman.
- 63 Oats, Registered Varieties, by T. R. Stanton.
- 64 Copper Carbonate for Stinking Smut in Wheat--Its Advantages and Disadvantages, by V. F. Tapke.

65 A manuscript entitled "Registration of Improved Wheat Varieties II," by J. Allen Clark, was approved on October 12 for publication in the Journal of the American Society of Agronomy.

66 A manuscript entitled "Registration of Varieties and Strains of Oats II," by T. R. Stanton, was approved on October 12 for publication in the Journal of the American Society of Agronomy. Galley proof read October 20.

67 A manuscript entitled "Differences in Resistance to Bacterial Wilt in Inbred Strains and Crosses of Dent Corn," by G. S. Reddy and J. R. Holbert, was submitted on October 18 for publication in the Journal of Agricultural Research.

Galley proof of Farmers' Bulletin 1544 entitled "The Common Barberry and Black Stem Rust," by E. C. Stakman, F. E. Kempton, and L. D. Hutton, was read October 11.

Page proof of Technical Bulletin No. 14 entitled "Cereal Experiments at the Fort Hays Branch Experiment Station, Hays, Kans., 1912 to 1923," by A. F. Swanson, was read October 12.

The article entitled "Correlation Between Yielding Ability, Reaction to Certain Diseases, and Other Characters of Spring and Winter Wheats in Rod-Row Trials," by H. K. Hayes, O. S. Aamodt, and F. J. Stevenson, appears in the Journal of the American Society of Agronomy 19 (10): 896-910. October, 1927. (The breeding of spring and winter wheat is conducted cooperatively by the Office of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

## FIELD STATION CONDITION AND PROGRESS

### HUMID ATLANTIC COAST STATES (South to North)

#### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

#### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

#### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

### HUMID MISSISSIPPI VALLEY STATES (South to North)

#### LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

#### MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

#### TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)



## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, -----)

Iowa State College, Ames (Barberry Eradication, P. W. Rohrbaugh)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, G. C. Curran)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stalman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, Chi Tu, Acting in Charge)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (October 15)

For the first half of October the weather has been dry and ideal for ripening sorghums though not so good for wheat.

With the exception of three varieties which were not fully ripe, the grain sorghums in the first-date-of-seeding plat have headed. The Dwarf faterita project and the milo hybrid plats also headed this week. All broomcorn plats were harvested some days ago.

Maximum temperature, 89 degrees October 5; minimum temperature, 38 degrees October 8. The precipitation for September was 0.77 inch, and for the first half of October 0.03 inch was recorded.

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellow)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. C. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungen)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague)

College of Agriculture, University Park, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungen)

## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (October 15)

Frequent showers have interfered with field operations, but the total precipitation has not been sufficient to insure uniform germination of the winter nursery. Most of the seed germinated, however, and the remainder is beginning to germinate.

The different strains of corn, both selfs and crosses, were harvested and shocked the day before the first killing frost (Sept. 20). They were husked recently and about 225 ears are obtained. The varietal test of corn varieties in field rows has been partly husked, and fairly good yields are indicated.

In the following tables are presented the acre yields obtained from the replicated plats of oats and barley varieties.

In the nursery experiments with spring wheat 51 varieties were grown in triplicated 3-row blocks in addition to a larger number in triplicated single rows. A separate smut nursery also included among others the same 51 varieties. The yields and stem-rust percentages from the replicated nursery rows and the smut percentages obtained from the smut nursery with the 51 varieties and strains are presented in Table 3, in the order of yield.

Table 1. Yields of oat varieties and of Yaroslav emmer grown in quadruplicated 56th-acre plats at the Dickinson Substation, Dickinson, N. Dak., in 1927

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield</u> (Bu. per Acre)
Green Russian Sel. (N.D.No.20014)	2343	61.9
Lincoln	738	59.1
Siberian	741	58.7
Avalanche	1440	58.0
Banner Selection	1997	57.6
Victory	560	57.1
Iogren	2024	55.9
White Russian	551	54.9
Early Mt. No. 8	2036	54.7
Silvermine	659	54.6
Big Four	658	54.5
Gopher	2027	52.7
Iowar	847	52.3
Markton	2053	51.2
Golden Rain	493	51.1
Nebraska No. 21	841	49.1
Richland	787	50.1
Kherson	459	48.8
Swedish Select	134	47.5
Iogold	2329	46.3
Liberty Hull-less	845	33.6 <sup>1</sup> / <sub>2</sub>
Yaroslav Emmer	1526	51.9 <sup>1</sup> / <sub>2</sub>

<sup>1</sup>/Computed at 32 pounds per bushel as with other varieties.

Table 2. Yields of barley varieties grown in triplicated 56th-acre plats at the Dickinson Substation, Dickinson, N. Dak., in 1927

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield (Bu. per Acre)</u>
2-rowed		
Steigum	907	31.2
Hannchen	531	29.2
Gold	1145	27.6
Hanna	203	27.2
Scholey	962	25.5
Svanhals	187	22.8
White Smyrna	658	22.6



Table 2 (continued)

Variety	C. I. No.	Yield (Bu. per Acre)
<u>2-rowed (continued)</u>		
Charlottetown	----	21.01/
Duckbill	----	20.01/
<u>6-rowed</u>		
Lion (Smooth awned)	923	30.6
Manchuria	244	29.3
Odessa	132	28.9
Nepal (Hull-less)	262	26.42/
White Gatami	920	20.4
Wing Pedigree (Hooded)	1177	19.1
Club Mariout	932	16.6
Flynn (Smooth Awned)	1311	15.9

1/ Only one plat .

2/ Computed at 48 pounds per bushel as with other varieties

Table 3. Yields and percentages of stem rust obtained from spring-wheat varieties and hybrids grown in triplicated 3-row blocks, and smut percentages obtained from the same wheats grown in a separate smut nursery from seed inoculated with Tilletia laevis at the Dickinson Substation, Dickinson, N. Dak., in 1927

Variety	C.I.No.	Yield (Bu. per A.)	Stem Rust (Per cent)	Smut (Per cent)
Marquis-Kota (1656.84)	8004	25.4	5	51
Do (1656.10)	----	23.7	3	63
Do (1656.97)	3005	22.7	8	66
Ceres (Average of checks)	6900	22.6	13	51
Marquis-Kota (1656.31)	8183	21.2	3	34
Marquis-Kanred (B9-11-50)	----	20.7	40	17
Kota-Hard Federation	8197	20.6	10	56
Marquis-Kota	6398	20.4	3	63
Kota-Kanred (B11-1-1)	----	19.8	15	9
Marquis-Kota (1656.109)	----	19.1	10	31
Marquis-Pioneer (17-52-2-1)	----	18.5	40	26
Kota-Kanred B2-1-7	----	17.7	20	0.2
Kota	5878	17.6	5	65
Reliance Selection 28	----	17.6	35	15
Do Selection 7	----	17.5	40	0.5
Kanred-Marquis B2-14-1	----	17.3	40	42
Kota-Hard Federation (1-16-2-4)	----	17.4	35	60
From Hurdsfield, N. D.	----	17.4	20	17
Marquis-Kanred (B9-11-48)	----	17.2	35	2
Kota-Kanred (B5-1-7)	----	16.9	15	2
Marquis-Kanred (11-17-40)	8018	16.7	40	46
Kanred-Marquis (B2-14-2)	----	16.6	40	39
Marquis-Monad (60-1-5)	----	16.5	40	38
Hope	----	16.2	trace	4
Reliance Selection 64	----	16.2	40	11
Do Selection 16	----	16.2	35	13
Do Selection 29	----	16.0	35	24

Table 3 (continued)

Variety	C. I. No.	Yield (Bu. per A.)	Stem Rust (Per cent)	Smut (Per cent)
Marquis (Average of checks)	3641	16.0	40	21
Reliance Selection 63	----	15.8	30	18
Marquis-Kanred B5-10	----	15.7	40	29
Reliance	7370	15.7	35	22
Marquis-Kanred (II-18-44)	8019	15.7	20	0.4
Kanred-Marquis (B2-14-20)	----	15.3	35	21
Axminster	----	15.3	40	7
Marquis-Erivan (N. No. 237)	----	15.3	25	3
Garnet	8181	15.1	30	26
Kota-Kanred (12-4)	----	15.0	15	29
Do (B5-1-2)	----	14.8	10	41
Kanred-Marquis (B9-11-27)	----	14.7	35	0
Do (B9-14-24)	----	14.3	40	6
Do (B9-14-42)	----	14.2	35	35
Reward	----	14.1	25	36
Kanred-Marquis (B9-14-22)	----	13.8	40	31
Kota Natural Hybrid	7377	13.8	8	54
Quality	6607	12.8	35	20
Renfrew	----	12.5	45	16
Reliance Selection 40	----	12.2	35	18
Marquis-Erivan (N. No. 236)	----	12.1	25	56
Supreme	----	11.6	45	21
Marquis-Kanred B9-14-28	----	11.5	40	27
Red Bobs 222	----	8.0	50	26

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausen)

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

#### WESTERN BASIN AND COAST AREAS (North to West and South)

#### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (October 14)

During September and the first 10 days of October the weather was rather unfavorable for the blooming and ripening of the rice crop. The temperatures have been too cold and dry for proper fertilization and development of the rice. As a result there will be considerable blighted rice which will reduce the yields in certain cases. Then, too, some of the rice that set seed has been very slow in ripening and as a result of the slow and uneven ripening part of the crop probably will be of poor quality, that is, there will be more chalky kernels than usual in part of the crop.

On the night of October 7 the minimum temperature was 36 degrees F., which injured some of the leaves on succulent rice plants. I doubt, however, that much damage was done on commercial fields as most of the rice was too far advanced to be injured.

We finished cutting the rice on the station plats, with the exception of four later varieties in the varietal tests, on October 11. Most of the nursery also is harvested. We started threshing on October 13 and should complete the threshing of the plats next week.

On September 27 a class in Agriculture from the Gridley High School visited the station.

On October 4 Congressman Clarence Lea and H. S. Brink visited the station.

On October 5 F. L. Goll, C. A. Lindstrom, and George Goergens of the Motion Picture Laboratory of the U. S. Department of Agriculture took some pictures of the station plats and nursery.

On October 6 a class in Agriculture from the Chico High School visited the station.

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. H. Briggs)

Flax Experiments at the U. S. San Antonio Field Station  
in cooperation with Office of Western Irrigation Agriculture

Mr. George T. Ratliffe, superintendent of the U. S. San Antonio Field Station, San Antonio, Tex., makes the following report on the yields obtained from the varietal experiment and the date-of-seeding experiment with flax during the season of 1926-27.

The flax varietal experiment and the date-of-seeding experiment for 1926-27 were seeded on land which had been cropped to oats in the winter of 1925-26 and during the summer had produced a heavy growth of Johnson grass. The land was plowed October 1. It was disked and harrowed after plowing and again just before seeding on December 16. There was very little growth of Johnson grass in the flax plats. The flax made very good growth in February and March but the growth was checked by drought at about the time of flowering, the latter part of March. Drought, which continued up to the time of ripening, was chiefly responsible for the reduced yields, which earlier in the season promised to be exceptionally good. No winter-killing occurred and no flax diseases of any kind were observed in the plats, although some disease did slight injury to a few rows in the nursery.

The yields of the varieties and of the date-of-seeding experiment are presented in the following tables:

Table 1. Yield of flax varieties in triplicate 40th-acre plats at San Antonio, 1926-27. (Seeded Dec. 16, 1926; harvested, April 22 to May 9, 1927.)

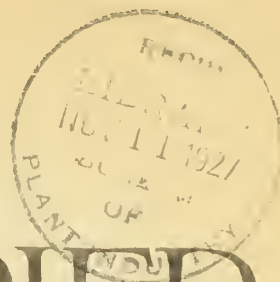
<u>Variety</u>	<u>C. I. No.</u>	<u>Yield (Bu. per acre)</u>
Selection 4-1	260	8.6
N. D. R. No. 52	275	8.1
N. D. R. No. 720	318	8.0
Linota	244	7.9
N. D. R. No. 131/	13	7.7
Morteros	107	7.7
Selection 34-34	267	7.6
Rosquin	109	7.2
Reserve	19	7.1
Long 79	280	5.0

1/ Average of 10 check plats

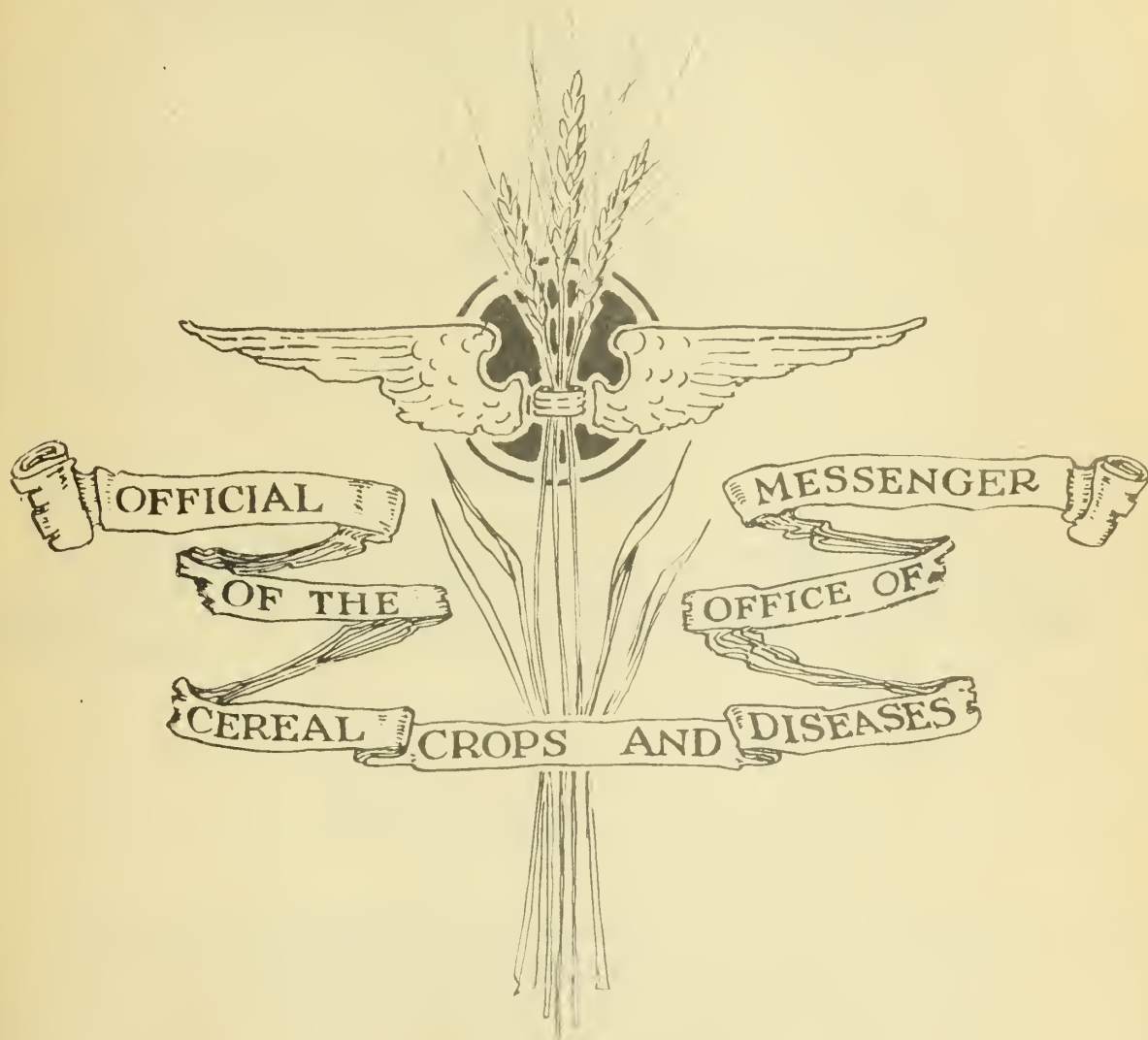
Table 2. Yield of flax, N. D. R. No. 114, in date-of-seeding experiment at San Antonio, Tex., in 1926-27. (One 10th-acre plat sown on each date.)

<u>Plat No.</u>	<u>Date--</u>		<u>Yield</u> <u>(Bu. per acre)</u>
	<u>Planted</u>	<u>Ripe</u>	
1	Dec. 17, 1926	May 2, 1927	5.7
2	Jan. 5, 1927	May 16, 1927	6.5
3	Jan. 29, 1927	May 19, 1927	8.6





# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE



## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 27

October 31, 1927  
Personnel (Oct. 21-31) and Project Issue

### PERSONNEL ITEMS

Dr. F. E. Kempton, associate pathologist in charge of barberry eradication, since July 1, 1919, resigned his position on October 31. Lynn D. Hutton, who has been assistant to Dr. Kempton since February, 1924, will succeed him.

### VISITORS

William Atherton Du Puy, of Washington, D. C., author of books on birds and animals and contributor of many magazine and newspaper articles on the work of the Government and National affairs, was an Office visitor on October 26 to get information to be used in the preparation of a series of Nature Readers.

Dr. George M. Rommel, formerly Chief of the Animal Husbandry Division, of the Bureau of Animal Industry, who is assembling data on enlarged industrial use of agricultural products, was an Office visitor on Saturday, October 29.

MANUSCRIPTS AND PUBLICATIONS

68 A manuscript entitled "Oregon Gains by the Breeding of Better Wheats," by D. E. Stephens, was approved on October 28 for publication in the magazine Oregon.

The manuscript entitled "Biometrical Studies on the Variation of Physiologic Forms of Puccinia graminis tritici and the Effects of Ecological Factors on the Susceptibility of Wheat Varieties," by M. N. Levine, transmitted on July 14 to the Journal of Agricultural Research was approved on October 27 for publication in Phytopathology.

Galley proof of article entitled "Registration of Improved Wheat Varieties II," by J. Allen Clark, for publication in the Journal of the American Society of Agronomy, was read October 21.

Galley proof of Technical Bulletin No. 38 entitled "Rate and Date of Seeding and Seed-Bed Preparation for Winter Wheat at Arlington Experiment Farm," by C. E. Leighty and J. W. Taylor, was read October 22.

Galley proof of article entitled "Studies in the Natural Hybridization of Wheat," by C. E. Leighty and J. W. Taylor, for publication in the Journal of Agricultural Research, was read October 31.

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# PROJECT REPORTS

## WESTERN WHEAT INVESTIGATIONS

(J. Allen Clark, Agronomist in Charge, and L. R. Waldron, Plant Breeder, N. Dak. Agr. Exp. Sta., and Collaborator, Office of Cereal Crops and Diseases.)

### Yields of promising rust resistant wheat varieties

In the spring wheat area of North Dakota and adjoining States the abundant occurrence of both black stem and orange leaf rust has enabled wheat breeders to determine the most rust resistant and highest yielding varieties and hybrid selections under rust conditions. The yields obtained from the most rust resistant strains in comparison with Marquis, the principal commercial variety, also give a basis for estimating the losses resulting from the 1927 epidemic and the relative value of the new varieties.

From the yields reported to date the most promising rust resistant new wheats are Kota-Marquis selections 1656.85, 1656.81, and 1656.84, and Hope, Ceres and Marquillo. The yields of Kota were reduced, because of leaf rust, to those of Marquis or below, and the early wheats, such as Garnet, Quality, and Ruby, did not escape stem rust. Reliance and other Kenred-Marquis selections did not possess sufficient resistance to produce favorable yields, although, like Marquis, some were very resistant to leaf rust. The six most promising strains listed above were resistant to both rusts.

The Hope variety was developed by E. S. McFadden of Webster, S. Dak., and is practically immune from both rusts. Marquillo was developed in cooperative experiments at the Minnesota Experiment Station, University Farm, St. Paul, Minn. Ceres and the three Kota-Marquis selections were developed at the North Dakota Agricultural Experiment Station. That station has inaugurated cooperative nursery trials with Smith-Hughes workers throughout the State and some of the results are now available. These yields together with those obtained from experiment stations in North Dakota are here reported for the above mentioned varieties and hybrids in comparison with Marquis.

Yield in bushels per acre obtained from Marquis, Ceres, Kota x Marquis selections 1656.85, 1656.84, and 1656.81, and Marquillo and Hope wheats obtained from plat and nursery experiments in North Dakota in 1927

Experiment and Station in N. Dak.	:	:	:	:	:	:	:	:	:	Yields in bushels per acre	:	:	:	:	:	:	:	:	:	:
Plat	:	Marquis	:	Ceres	:	1656.85	:	1656.84	:	1656.81	:	Marquillo	:	Hope	:	:	:	:	:	:
Edgeley	:	18.9	:	25.3	:		:	30.3	:		:	23.4	:		:		:		:	
Langdon	:	26.1	:	30.1	:		:	30.3	:		:	35.6	:		:		:		:	
Mandan	:	15.4	:	18.6	:		:	19.7	:		:	15.1	:		:		:		:	
Dickinson	:	18.2	:	24.2	:		:	24.2	:		:	17.4	:		:		:		:	

## Continued

Experiment and Station in N. Dak.	Yields in bushels per acre							
	Marquis	Ceres	1656.85	1656.84	1656.81	Marquillo	Hope	
<u>Nursery</u>								
Fargo	34.7	33.3	39.2	40.6	40.4	34.7	35.0	
Edgeley	20.0	30.0	46.1	39.1	40.8	23.0	39.7	
Langdon	26.9	28.6		31.8	32.5	31.1	32.5	
Mandan	22.5	30.8		33.3	33.1	24.5	29.2	
Dickinson	16.0	22.6		25.4	21.2		16.2	
Arthur	17.3	25.9	44.1	35.2	31.7	27.8		
LaMoure	22.4	27.8	34.7	31.0	31.5	21.0		
Ellendale	18.2	30.2	48.2	36.5	41.5	27.7	39.5	
Valley City	29.0	45.4	55.4	52.9	54.1	41.2	37.7	
Milnor	19.2	18.7	20.3	18.9	17.3	14.9	13.4	
Buffalo	13.7	16.5	21.2					
Grafton	42.0	50.7	58.6					
Park River	33.5	35.1	45.5					
Neché	20.9	31.1	37.2					
Velva	19.7	25.1	26.2					
Granville	10.7	11.0	8.0					
Kenmare	18.7	21.4	22.5					
Hazen	14.2	16.8	23.6					
New Salem	15.1	18.6	19.3					
New England	18.5	22.4						
Beach	32.3	42.7						

Averages	No. Trials							
Ceres	25	21.8	27.3					
1656.85	16	21.8	27.4	34.4				
1656.84	14	21.8	28.0		32.1			
1656.81	10	22.6	29.3		34.5	34.4		
Marquillo	13	22.2	28.4		32.6		26.0	
Hope	8	23.3	30.0		34.8	35.1		30.4

Percentages								
Ceres	25	100.0	125.2					
1656.85	16	100.0	125.7	157.8				
1656.84	14	100.0	128.4		147.2			
1656.81	10	100.0	129.6		152.7	152.2		
Marquillo	13	100.0	127.9		146.8		117.1	
Hope	8	100.0	128.8		149.4	150.6		130.5

These new varieties in comparison with Marquis, rank in order of production, as follows:

<u>Variety</u>	<u>No. trials</u>	<u>Yield in Per Cent of Marquis</u>
1656.85	15	157.8
1656.81	10	152.2
1656.84	14	147.2
Hope	8	130.5
Ceres	25	125.2
Marquillo	13	117.1
Marquis		100.0

The six varieties average 138.3 in comparison with Marquis as 100.0 per cent. It may thus be assumed that if these new varieties had been grown in North Dakota in the place of Marquis the State's wheat production would have been over 38 per cent larger. It is probable that without rust the same varieties may have outyielded Marquis by 10 to 15 per cent, thus indicating from these yields a probable loss to the State, due to rust, of at least 25 per cent.

## OAT INVESTIGATIONS

(T. R. Stanton, Agronomist in Charge, and F. A. Coffman, Associate Agronomist.)

Breeding Winter Oats

During the season of 1926-1927, material progress was made in determining the value of a number of new varieties and strains of winter oats in nursery experiments at the Arlington Experiment Farm. The selections from crosses between the Winter Turf and Aurora varieties again produced the highest acre yields as a group. A few of these unnamed selections give promise of being superior to the Lee and Custis, as well as to the other two strains which were named Jackson and Randolph last year. Owing to lack of uniformity the Custis variety is being reselected. A relatively large number of selections from it were grown in head rows during the season of 1925-26. The particular cross between Winter Turf and Aurora from which the Lee and Custis strains were derived, so far has been the most important winter oat cross made at the Arlington Experiment Farm. As a group, practically all the selections from this cross show inherent high yielding ability in combination with excellent kernel characters and a fair degree of cold resistance.

Some of the cold-resistant strains of Fulghum also showed superior yielding ability. Selections 699-2011 and 699-2013 apparently are the most promising from the standpoint of yield. Selection 699-202, on the basis of uniformity and quality of grain, is one of the best red strains isolated at the Arlington Experiment Farm. In field plats as reported in the Cereal Courier for August 10 it ranked near the top in acre yield. However, in nursery experiments it failed to measure up in yield with the other better strains of this group of selections. Soil inequality may partly account for its relatively poor showing in nursery tests.

Some of these new oat varieties have been tested on farms in near-by points in southern Maryland. Prof. W. B. Kemp, of the University of Maryland, reported the following acre yields from Chapel Point: Lee, 56.5 bushels; Custis, 50 bushels; Culberson, 50 bushels, and Winter Turf, 47 bushels. At Welcome, Md., the Custis, Winter Turf, Lee, and Culberson yielded at the rate of 87.5, 65.6, 59.4, and 37.5 bushels per acre, respectively. The yield of Lee was reduced by rat injury, and therefore is not comparable with the yields of the other varieties. On one year's observations Prof. Kemp believes that the Custis perhaps offers the greatest possibilities as a new winter oat for southern Maryland.

The Custis and Lee varieties also were tried under farm conditions in Prince Edward County, Virginia, through Mr. George W. Patteson, Extension Agronomist of the Virginia A. and M. College and Polytechnic Institute at Blacksburg. Owing to the fact that the oats were sown on rather wet land, considerable winterkilling occurred, and as a consequence little definite information was obtained on the adaptation of these varieties under normal conditions. However, the farmer is anxious to continue these varieties another year, and is hoping to be able to grow them under more favorable conditions in 1927-1928.



Two of the winter selections from Fulghum namely 699-2011, and 699-2015, were grown at Texas Substation No. 6, Denton, Tex. They were compared with Nortex, the local standard variety, Dwarf Culberson, Winter Turf, Custis, and Lee. The acre yields as reported by Supt. P. B. Dunkle were as follows:

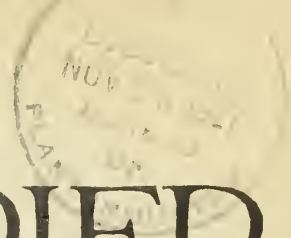
<u>Variety</u>	<u>C. I. No.</u>	<u>Yield</u> <u>(Bu. per Acre)</u>
Fulghum	699-2015	73.9
Fulghum	699-2011	63.1
Nortex (check)		
T.S.No. 9235	----	38.6
Dwarf Culberson	748	31.2
Custis	2041	19.9
Lee	2042	19.2
Winter Turf	431	0.0

It will be noted that the best Fulghum selection produced nearly twice the yield of Nortex. It also will be noted that Winter Turf failed to produce any yield whatever, and that the yields of Lee and Custis were very low. It is evident that varieties belonging to the common winter oat group are not at all adapted to conditions in northeastern Texas, and it is not believed that Lee and Custis, or similar selections, will find a place in this territory.

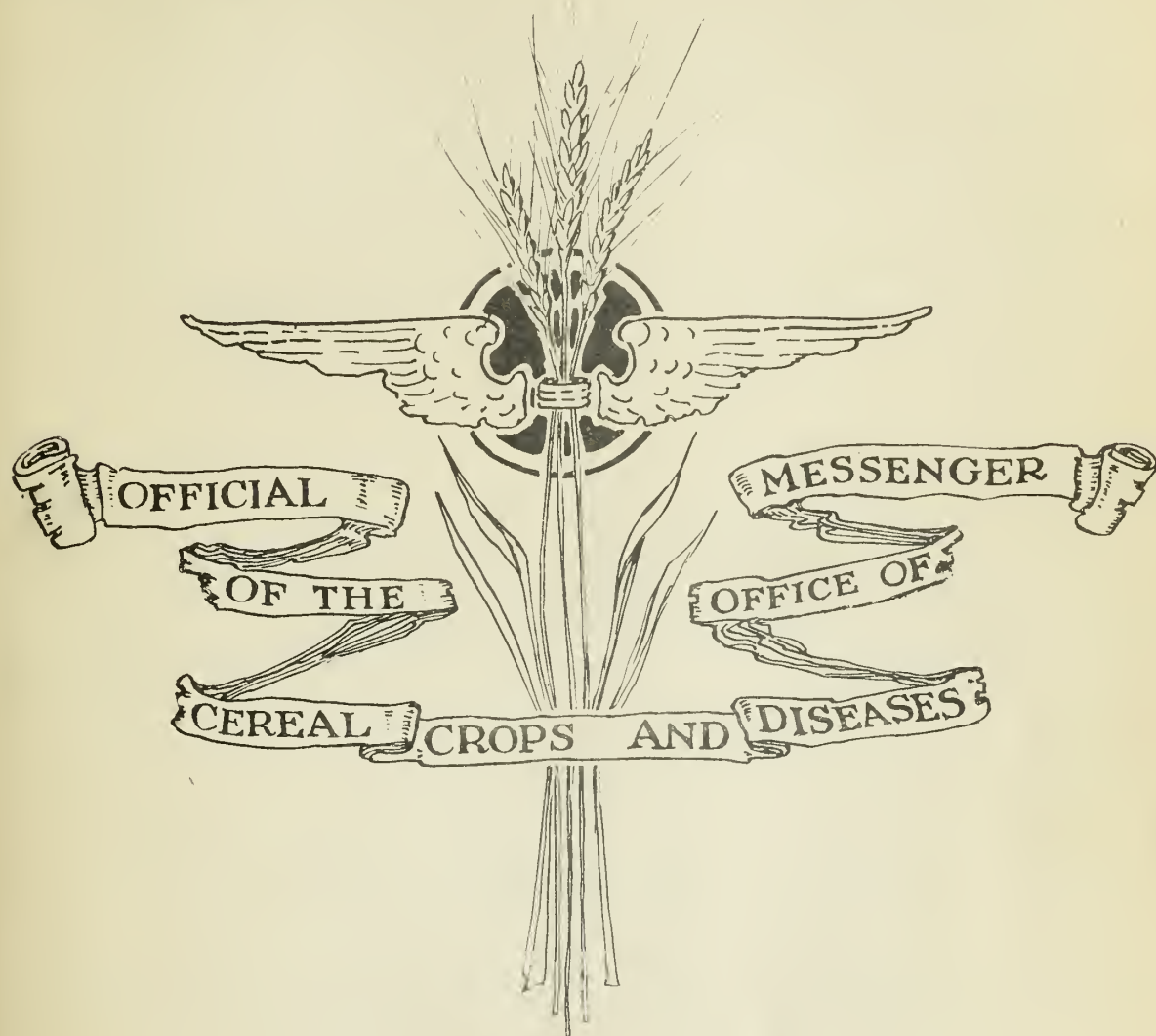
Over 200 selections from typical Fulghum collected in the South in the past few years were grown in triplicated and single rod rows at the Arlington Experiment Farm during the past season. A number of these selections showed marked uniformity and high yielding ability under conditions rather favorable for the more tender varieties of winter oats. However, they are being developed primarily for the Cotton Belt. It is believed that as a group these selections are not sufficiently winter hardy to compete with such cold-resistant varieties as Winter Turf, Culberson, Lee, etc., under conditions prevailing at the Arlington Experiment Farm; that is, under the winter climate usually prevailing in the more northern portion of the winter oat belt. Owing to the great variability of most commercial strains of Fulghum now being grown in the southeastern States, it is believed that this variety offers great possibilities for the development by selection of more satisfactory strains for growing from fall seeding in the Cotton Belt proper.



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# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

CEREBAL CORPUS



UNITED STATES OF AMERICA



## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

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Vol. 19

No. 28

November 10, 1927

Personnel (Nov. 1-10) and Field Station (Oct. 16-31) Issue

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### NOTICE

Beginning with the December issue, the Cereal Courier will appear semi-monthly. The issues will be dated the 15th and last days of each month. This semi-monthly appearance will be continued until April 1, 1928, on which date the trimonthly issues will be resumed and continued throughout the growing season. Contributors will kindly continue to send in notes on the 15th and last days of each month.

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### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, will attend the meetings of the Association of Land-Grant Colleges to be held in Chicago from November 15 to 17 and those of the American Society of Agronomy on November 17 and 18. Dr. Ball, who is Chairman of the Committee on Agronomic Terminology of the American Society of Agronomy, will report for that Committee. Dr. Ball also is Acting Chairman of the Agronomic Advisory Board of the National Research Council, and Chairman of its Subcommittee on Crops, and will report to the Society in both capacities.

After the meetings in Chicago, Dr. Ball will visit the field operations of the Corn Stalks Products Co., at Danville, Ill. He also will confer with officials of agricultural experiment stations on cooperative experiments and corn-borer research programs in some of the States of the upper Mississippi Valley. He will be in the field until about November 27.

J. Allen Clark, agronomist in charge of western wheat investigations, has been authorized to attend the meetings of the American Society of Agronomy to be held in Chicago on November 17 and 18. Mr. Clark will report to the Society on the registration of new varieties during the past year. This work is part of a cooperative project between the divisions of agronomy of the State agricultural experiment stations, as \_\_\_\_\_ by the American Society of Agronomy, and the U. S. Bureau of Plant Industry. [represented]

While in Chicago, Mr. Clark will consult with Dr. Sewall Wright, of the University of Chicago, on the inheritance of awnlessness in wheat hybrids.

Dr. E. F. Gaines, cerealist at the State College of Agriculture, Pullman, Wash., and agent in the cereal experiments that are being conducted in cooperation with this Office, has been authorized to attend the meetings of the American Society of Agronomy to be held in Chicago November 17 and 18. From Chicago, Dr. Gaines will proceed to Washington, D. C., where he will confer with members of this Office on the preparation of cooperative manuscripts.

Dr. C. W. Hungerford, acting dean of the College of Agriculture of the University of Idaho and acting director of the Idaho Agricultural Experiment Station, and collaborator with this Office, will come to Washington from Chicago, where he will attend the meetings of the Association of Land-Grant Colleges from November 15 to 17. Dr. Hungerford will be in Washington about 10 days to confer with members of this Office and to do bibliographic research in the Department library in preparation for submitting manuscripts for publication.

L. D. Hutton, associate pathologist in charge of barberry eradication, has been authorized to attend the meetings of the Association of Land-Grant Colleges to be held in Chicago from November 15 to 17 to confer with State Extension Directors.

Dr. A. G. Johnson, senior pathologist in charge of cereal-disease investigations, returned to Washington on November 10 after a three-week trip in Indiana, Illinois, Missouri, Kansas, Nebraska, Iowa, and Wisconsin. He accompanied Dr. James G. Dickson, agent and pathologist in charge of cooperative wheat-scab investigations, Madison, Wis., and Dr. James R. Holbert, agronomist in charge of investigations of corn root, stalk, and ear rots in cooperation with Funk Brothers Seed Company, Bloomington, Ill., on a survey of corn-rot conditions.

Dr. Karl P. Link was appointed agent, effective November 1, to assist Dr. James G. Dickson in the researches on methods of plant chemistry and the chemical study of disease-resistant and susceptible corn seedlings that are being conducted in cooperation with the Wisconsin Agricultural Experiment Station at Madison.

M. A. McCall, agronomist in charge of cereal agronomy investigations, who has been traveling in the West since October 14 consulting with Office employees and officials of agricultural experiment stations regarding plans for and progress of cooperative cereal experiments, will stop at Chicago on his return trip to attend the meetings of the Association of Land-Grant Colleges and the American Society of Agronomy from November 15 to 18, inclusive.

R. W. Smith, associate agronomist in charge of the cooperative cereal experiments at the Dickinson Substation, Dickinson, N. Dak., will come to Washington in the latter part of November to confer with members of the Office concerning the progress of the cereal experiments at Dickinson and to prepare cooperative manuscripts presenting the work accomplished in the past few years. Mr. Smith will stop at Fargo, N. Dak., and St. Paul, Minn., to consult with Office employees and experiment station officials, and also at Chicago, where he has been authorized to attend the meetings of the American Society of Agronomy on November 17 and 18. Mr. Smith will be in Washington until about the middle of December. On the return trip to North Dakota he will visit Ithaca, N. Y., to confer with officials of Cornell University.

T. R. Stanton, agronomist in charge of oat investigations, has been authorized to attend the meetings of the American Society of Agronomy to be held in Chicago on November 17 and 18. Mr. Stanton, who is a member of the Subcommittee for the Registration of Oat Varieties, will report to the Society on new oat varieties registered during the past year. This work is a part of the cooperative project between the divisions of agronomy of the State agricultural experiment stations, as represented by the American Society of Agronomy, and the U. S. Bureau of Plant Industry.

D. E. Stephens, superintendent of the Sherman County Branch Station, More, Oreg., will come to Washington in the latter part of November to confer with members of the Office concerning the cooperative investigations at More and to prepare manuscripts on the experiments of the past few years. On his way to Washington Mr. Stephens will stop at Logan, Utah, and Manhattan, Kans., to consult with Office employees and officials of the agricultural experiment stations. At Chicago, Ill., he will attend the meetings of the American Society of Agronomy on November 17 and 18. Mr. Stephens will remain in Washington until about the end of January, 1928.

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#### VISITORS

Dr. H. R. Kraybill, State Chemist of Indiana and professor of agricultural chemistry at Purdue University, La Fayette, Ind., was an Office visitor on November 5. Dr. Kraybill had come to Washington to attend the meetings of the Association of Official Agricultural Chemists October 31-November 2.

Dr. H. B. Sprague, agronomist in the division of soils and crops at the New Jersey Agricultural Experiment Station, was an Office visitor on November 4 and 5. Dr. Sprague was especially interested in obtaining information on new varieties of wheat, oats, and barley that may be adapted to New Jersey conditions.

Dr. R. A. Emerson, head of the department of plant breeding and dean of the graduate school of Cornell University, who has been in Washington attending the meetings of the Association of American Universities, was in the Office November 9 and 10, conferring on the cooperative corn breeding and cytological experiments that are being conducted at Ithaca.

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IMPORTANT NOTICE

Any member of the Office staff in Washington or in the field who plans to present a paper at the meeting of the American Association for the Advancement of Science or one of its affiliated societies at Nashville, Tennessee, December 26 to 31, should submit promptly the abstract of such paper if one is required by the Society before which it is to be presented. These abstracts must have official approval in the Department before being released and it is desired that all of them be assembled in time for transmittal and approval together. Belated abstracts, arriving after the others have gone forward for approval, run the risk of delay and failure of approval in time for publication.

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# MANUSCRIPTS AND PUBLICATIONS

69 A manuscript entitled "English or Latin Plurals for Anglicized Latin Nouns?" by Carleton R. Ball, was approved on November 4 for publication in "American Speech."

Galley proof of Technical Bulletin 39 entitled "Inheritance of Awnedness, Yield, and Quality in Crosses between Bobs, Hard Federation, and Prope Wheats at Davis, California," by J. Allen Clark, V. H. Florell, and J. R. Hooker, was read November 7.

Page proof of Farmers' Bulletin 1540 entitled "Smuts of Wheat and Rye and Their Control," by W. H. Tisdale and V. F. Tapke, was read November 7.

Page proof of Farmers' Bulletin 1544 entitled "The Common Barberry and Black Stem Rust," by E. C. Stakman, F. E. Kempton, and L. D. Hutton, was read November 7.

Page proof of Technical Bulletin 38 entitled "Rate and Date of Seeding and Seed-Bed Preparation for Winter Wheat at Arlington Experiment Farm," by C. E. Leighty and J. W. Taylor, was read November 8.

The article entitled "Studies on the Control of Millet Smut," by L. E. Melchers, appears in *Phytopathology* 17 (10): 739-741. October, 1927. (Cooperation between Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

An abstract entitled "Dehulling Barley Seed with Sulfuric Acid to Induce Infection with Covered Smut (*Ustilago hordei*)," by Fred N. Briggs, appears in *Phytopathology* 17 (10): 747-748. October, 1927. (Cooperative investigations by the Office of Cereal Crops and Diseases and the agronomy division of the California Agricultural Experiment Station.) (The abstract was presented at the Eleventh Annual Meeting of the Pacific Division of the American Phytopathological Society at the University of Nevada at Reno, June 23, 1927.)

The article entitled "A Factor for Yellow-Green Chlorophyll Color in Maize and Its Linkage Relations," by Merle T. Jenkins, appears in *Genetics* 12 (6): 492-518. November, 1927. (Cooperative investigations between Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Iowa Extension Service Bulletin 141 entitled "Small Grain Rusts and the Progress of Barberry Eradication in Iowa," by I. E. Melhus and M. A. Smith, was received November 7, 1927. (16 p., 10 figs., July, 1927.) (Cooperative investigations between Office of Cereal Crops and Diseases and the Extension Division of the Iowa State College of Agriculture and Mechanic Arts.)

FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)  
(November 3)

The fall seeding of cereals in the various experiments has been completed. The sowing of wheat extended almost throughout the entire month of October owing to frequent rains and cloudy weather. On the whole, germination of all fall-sown grains is satisfactory. However, seedings of wheat made on one date when the weather conditions were favorable to soil baking resulted in poor stands. Inasmuch as the conditions were similar for the check plats sown on the same date, some comparison of the yielding ability of wheat varieties regardless of date of seeding can be made.

A comparison of the yields of mixtures of winter grains with the yield of each kind grown alone was obtained in 1927. Equal parts, by weight, of wheat, oats, and barley composed the mixture. The average yields obtained are presented in the following table.

	<u>Wheat</u>	<u>Oats</u>	<u>Barley</u>	<u>Total</u> (Lbs. per acre)
Yield of each grain grown in mixture (Bu. per acre)	11.7	16.7	6.7	1558
Yield of each grain grown alone (Bu. per acre)	27.6	44.6	19.2	1656
	----	----	----	1427
				922

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, -----)

Iowa State College, Ames (Barberry Eradication, P. W. Rohrbaugh)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, -----)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, H. A. Rodenhiser)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger) (November 3)

The weather of the last half of October was warm, clear, and dry. Harvesting of the sorghums has progressed satisfactorily and seed heads have been saved from all varieties except those in the milo-hybrid nursery. All the sorghums in the plats have been headed and the heads are curing in wire baskets. From appearances yields will be higher than last year.

Minimum temperature for the last half of October, 39 degrees on the 31st; maximum, 90 degrees on the 26th. Precipitation, 0.18 inch on the 29th; total for October, 0.21 inch.



## KANSAS

- Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)  
Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)  
Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)  
Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)  
Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

- Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

- North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague)  
College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

- College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

## SOUTH DAKOTA

- College of Agriculture, Brookings (Barberry Eradication, R. C. Bulger)  
 (October 24)

Typical Indian summer weather during most of October provided excellent conditions for field work in barberry eradication. The field force has been reduced to four men, due to resignations necessary because of a continuance of college and graduate study by the former assistants.

The number of bushes found this year is not large; less than three and one-half counties have been surveyed, however, owing to the intensive type of survey necessary. Escaped barberries frequently are found along river and stream banks. These illustrate clearly the work of birds in seed dissemination, and demonstrate the necessity of covering every foot of natural and planted timber.

One of the largest areas of escaped bushes was found this year in Lincoln County. Three large bushes were located on the golf course near the city of Canton, and in the immediate vicinity approximately 500 seedlings were found. Scouts on resurvey in the city of Hot Springs found over 200 escaped barberries. Hot Springs is in the southern edge of the Black Hills, and it was impossible to determine the outer limits of this area in the time available. Undoubtedly, it will be necessary to cover every foot of territory within a 5-mile radius of the city. Because of the mountainous character of the area, scouting will require an immense amount of time and labor.

One of the largest barberry bushes, if not the largest, ever found in South Dakota, was located this year in Yankton County. This bush was nearly 15 feet high and six feet in diameter at the bottom. Its spread was more than 15 feet in diameter at the top. Five 100-pound salt sacks of berries were picked from this bush. The location and known history of this bush indicate that it was an escape.

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (October 31)

Indian summer weather prevailed during most of the latter half of October. Maximum temperatures above 80 degrees were recorded on several days and the minimum was above freezing on many nights. The total rainfall for the month was 0.57 inch, the principal rain being on the 29th when 0.37 inch was recorded.

As a result of the dry weather, threshing, which had been considerably delayed by wet weather earlier in the fall, has now been practically finished in this part of the State. Field work at the Substation is now about completed for the season. The corn varieties have been husked and the stover weighed. Samples of each variety have been hung up to dry in order to determine the moisture content. Grasshoppers became somewhat active in the winter wheat during the mild weather and a second application of poisoned bran was necessary in order to prevent damage.

Milling and baking samples of 38 varieties of wheat are being prepared to send to Fargo and to Washington. About 250 samples from the nursery have been sent to Washington for protein tests.

Acre yields obtained from the combined rate-and-date-of-seeding experiment with Marquis, Ceres, and Nodak wheats are presented in the following table. Almost without exception the first date (April 19), and the 4-peck rate gave the highest yields. The average yields for the three varieties were: Marquis, 14.5; Ceres, 13.3; Nodak, 20.5 bushels. The average yields for the three different dates of seeding were: April 19, 20.9; May 2, 17.3; and May 17, 15.0 bushels per acre.

Yields obtained from a rate-and-date-of-seeding experiment with Marquis, Ceres, and Nodak wheats sown at four rates on three dates at the Dickinson Substation, Dickinson, N. Dak., in 1927

Rate of seeding		Acre yield (bushels)				
Variety	seedling	April 19	May 2	May 17	Average	
	(pecks)				(3 dates)	
Marquis	3	16.6	13.2	8.8	12.9	
	4	18.1	19.1	9.5	15.6	
	5	17.7	15.0	10.3	14.3	
	6	16.7	15.8	12.5	15.0	
	Average	17.3	15.8	10.3	14.5	
Ceres	3	20.1	18.6	14.6	17.8	
	4	23.6	21.0	13.1	19.2	
	5	22.3	13.2	17.4	17.6	
	6	21.7	16.0	18.4	18.7	
	Average	21.9	17.2	15.9	18.3	
Nodak	3	20.7	20.0	18.9	19.9	
	4	24.0	19.1	21.2	21.4	
	5	23.0	19.8	17.8	20.2	
	6	26.6	17.2	17.5	20.4	
	Average	23.6	19.0	18.9	20.5	
Average (3 varieties)		20.9	17.3	15.0	17.75	

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus)  
(November 1)

The weather in October was very favorable for threshing in this section of the State. Most of the threshing now has been completed.

Yields of the cereal crops in general are good, with spring wheat yields ranging from 10 to 25 bushels per acre. Considerable damage from rust has been reported in late sown wheat and in fields injured by hail.

The uniform winter-hardiness nursery sown on September 20 had emerged on October 21. Germination was delayed by the continued dry weather.

A. C. Dillman, associate agronomist in charge of flax investigations, was a recent visitor at the station.

The maximum temperature for the month was 87 degrees on October 19; minimum, 23 degrees on October 8. The temperatures have been exceptionally mild; only 12 days had a temperature of 32 degrees or below. The total precipitation for the month was 0.44 inch.

The average date of heading, percentage of leaf and stem rust, and yield in bushels per acre of 50 varieties and hybrids of spring wheat grown in single rod rows replicated three times, which outyielded the Kota check rows, are presented in the following table.

Variety or hybrid	C. I.:	Hybrid No.	Date :	Rust	Yield
	No.:		first:	:	(Bu.
	:	:	head-	Leaf:	Stem: per
	:	:	ing	P. C.:	L. C.: acre)
<u>Durum</u>					
Mindum	:	5296:	:	7-6	T: 10: 41.0
Pentad	:	:	:	7-4	O: T: 39.9
Kubanka No. 3 x Pentad	:	:	:	7-6	O: 8: 38.7
Iumillo	:	1736:	:	7-6	O: T: 37.2
Mindum x Pentad	:	:	:	7-4	O: 3: 36.4
Kubanka No. 3 x Pentad	:	:	:	7-6	O: 3: 35.7
Kubanka No. 3	:	:	:	7-6	T: 7: 30.2
Kubanka No. 3 x Pentad	:	:	:	7-5	T: 7: 29.8
<u>Common</u>					
Webster	:	3780:	:	7-6	5: 2: 34.7
Kota x Webster	:	H-81-25	:	7-2	5: T: 34.0
Kanred x Marquis	:	1718B9-11-27	:	7-3	3: 60: 31.8
Marquis x Kota	:	Aa1044	:	7-4	10: 17: 30.0
Do	:	1656.79	:	7-2	10: 10: 29.6
Do	:	Aa1042:	:	7-4	10: 15: 29.1
Kanred x Marquis	:	1718B5-14-3	:	7-5	2: 70: 28.1
Do	:	1718B9-11-13	:	7-3	7: 57: 28.0
Kota x Webster	:	H-209-25	:	7-2	25: 5: 27.8
Do	:	H-178-25	:	7-6	10: 5: 27.3
Kanred x Marquis	:	1718B9-14	:	7-6	35: 53: 26.3
Kota-Hd. Federation x Kanred-Marquis:	:	24311A1-20-2-3	:	7-2	20: 57: 26.3
Do	:	23270C1-19-1-2-4	:	7-1	25: 10: 25.5
Marquis x Kota	:	II-19-11	:	7-3	15: 18: 25.3
Kota-Hd. Federation x Kanred-Marquis:	:	23270A1-10-2	:	7-1	25: 15: 24.6
Kota x Webster	:	H-123-25	:	7-5	30: 5: 24.5
Marquis (Average 5 checks)	:	3641:	:	7-3	7: 57: 24.4
Kanred x Marquis	:	II-17-37	:	7-2	25: 45: 24.3
Kota-Hd. Federation x Kanred-Marquis:	:	23270A3-6-3	:	7-1	5: 42: 24.0
Marquis x Kota	:	II-19-9	:	7-6	35: 23: 24.0
Do	:	1656.47	:	7-4	20: 3: 23.7
Do	:	II-19-57	:	7-2	35: 15: 23.4
Kota-Hd. Federation x Kanred-Marquis:	:	23270C1-19-2	:	7-1	20: 15: 23.4
Do	:	24312B1-27-1-2	:	7-3	60: 12: 23.4
Do	:	24311A1-21-1-1	:	7-5	15: 60: 23.3
Kota x Webster	:	H-119-25	:	7-1	50: 7: 23.3
Kota-Hd. Federation x Kanred-Marquis:	:	23270C1-5-1	:	7-4	20: 12: 23.0
Marquis x Kota	:	II-15-8	:	7-6	10: 53: 22.6
Kota-Hd. Federation x Kanred-Marquis:	:	23270A1-9-2	:	7-5	5: 8: 22.3
Do	:	24311A1-16-1-1	:	7-6	25: 17: 22.2
Do	:	24312B1-2-1-3	:	7-5	55: 47: 22.2
Marquis x Kota	:	II-19-46	:	7-2	25: 17: 22.2
Do	:	Aa1032	:	7-2	30: 13: 22.2



Continued

Continued

	: : C.I. : : No. : :	Hybrid No.	: Date : : first : : head- : : ing :	Rust : : : P.C. :	: Yield : : : P.C. : : acre)
Variety or hybrid					
<u>Common</u>					
Kota-Hd. Federation x Kanred-Marquis:	:	:24311A2-15-1-1	:7-4	: 20:	32: 22.1
Kota x Webster	:	:H-203-25	:7-2	: 30:	7: 22.1
Kota-Hd. Federation x Kanred-Marquis:	:	:23270A3-10-1	:7-1	: 10:	33: 22.0
Marquis x Kota	:	:Aa1034	:7-7	: 30:	12: 21.8
Kota-Hd. Federation x Kanred-Marquis:	:	:24311A2-49	:7-1	: 10:	23: 21.7
Do	:	:24311A1-19-3-1	:7-4	: 20:	60: 21.5
Do	:	:23270A1-10	:7-1	: 25:	27: 20.4
Do	:	:24311F1-27	:7-1	: 45:	13: 20.3
Kota x Ruby	:	:1100-15	:7-6	: 60:	12: 20.3
Kota	:	:5573:	:7-5	: 65:	11: 20.2

## MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. E. Tayles) (October 20,

The weather of the past two weeks was very favorable for harvesting and threshing. Nearly all of the wheat in the Judith Basin has been cut and the combining completed. Much threshing remains to be done, but in another week or ten days most of the grain will have been threshed.

All field operations on the Substation have been completed with the exception of the seeding of the date-of-seeding experiment with winter wheat. All seed has been cleaned and stored.

Yields obtained from winter wheat, oats, and barley grown in plot experiments in 1927 are presented in the following tables.

Winter wheat in the Judith Basin looks very well this fall. A larger acreage was seeded this fall than in 1926.

The minimum temperature for the first half of October was 25 degrees on the 5th and 12th; maximum temperature, 73 and 65 degrees on the 14th and 10th, respectively. The precipitation was 0.49 inch, which fell in light showers on the first five days of the month.

Yield of winter wheat varieties grown in 50th-acre plats replicated four times at the Judith Basin Substation, Moccasin, Mont., in 1927

Variety	C.I.No.	Yield (Bu. per acre)
Karmont	6700	42.0
Montana No. 36	5549	40.7
Kharkof	1533	39.3
Kharkof Sel. (Hays No. 2)	6636	39.5
Nebraska No. 60	6250	38.5
Beloglina	1667	38.4
Newturk	6935	38.4
Turkey	1555	38.1
Nebraska No. 6	6249	38.1
Kanred	5146	36.6
Minard	6690	36.6
Turkey (Minn. 1485)	6152	36.4
Regal	7364	32.9
Beloglina	1543	37.6

The highest yield was obtained from Karmont, which is becoming widely grown in Montana. Newturk, a new awnless hard red winter wheat which also was developed and distributed from this station, yielded less than Karmont and Kharkof but more than Turkey and Kanred. Regal, a smut resistant variety tested for the first year at Moccasin, gave the lowest yield of all varieties.

Average yields obtained from a furrow-drill and rate-of-seeding experiment with Kharkof wheat (each rate with each drill replicated four times) at the Judith Basin Substation, Moccasin, Mont., in 1927

Rate of seeding (Pecrs per acre)	Type of drill and yield (Bu. per acre)			
	Ordinary Drill	Furrow Drill	Average	
2	33.3	32.2	32.8	
3	34.3	34.6	34.5	
4	34.2	35.0	34.6	
5	36.7	35.3	36.0	
Average	34.6	34.3	34.5	

It will be noticed that there was very little difference in the yields from the two different drills. This is explained by the fact that during the winter of 1926-27 there was very little, if any, winterkilling and the extra protection afforded by the furrow drill was of no advantage. The heavier rate of seeding gave the highest yield for both methods of seeding.

Yield of oat varieties grown in 50th-acre plats replicated four times at the Judith Basin Substation, Moccasin, Mont., in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per Acre)</u>
Lincoln	738	61.9
Swedish Select	134	61.3
Silvermine	714	58.0
Alexander	1592	55.2
Markton	2053	55.1
Wisconsin Wonder	1152	54.1
Banner	751	53.9
Green Russian	2343	53.0
Richland	787	52.2
Iogold	2329	50.5
Sixty-Day	165	50.0
Do	165-4-r-4	49.7
Victory	742	49.2
Liberty Hull-less	845	34.6

Yield of barley varieties grown in 50th-acre plats replicated four times at the Judith Basin Substation, Moccasin, Mont., in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per acre)</u>
Horn	926	32.5
Hannchen	531	30.0
Coast	690	28.8
Alpha	959	27.2
Svanhals	127	26.1
Hurst	1304	24.1
Club Mariout	261	22.7
Faust	4579	22.6
Meloy	1176	22.4
Arequipa	1256	22.3
Mechanical Mixture	4115	22.0
Composite Cross	4116	20.7
Manchuria	354	20.7
Himalaya	620	19.9
White Smyrna	195	18.6
Hero	1286	18.2
Hannchen Sel.		36.82/

a/ Single plat

Yield of flax varieties grown in 50th-acre plats replicated three times at the Judith Basin Substation, Moccasin, Mont., in 1927

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield (Bu. per acre)</u>
Newland	188	9.1
Selection 8-4	189	8.2
Argentine, Long 79	280	8.0
Selection 64-6	191	7.5
Linota	244	6.1
N. D. R. 114	13	5.9
Stark	185	5.3
Slope	274	5.1
N. D. R. 52	275	4.9
Winona	179	4.7
Hybrid 19 x 112	383	5.9 <sup>a/</sup>

<sup>a/</sup> Single plat

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

#### WESTERN BASIN AND COAST AREAS (North to West and South)

##### IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

##### WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

##### OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
[November 3]

Unusually favorable weather conditions prevailed in the Columbia Basin counties of Oregon in the months of September and October. There was enough rainfall in September and early October to germinate the weeds on the fallow and to make moisture conditions excellent for sowing winter wheat. Seeding operations are finished in nearly all localities and winter wheat has emerged with good stands.

The rainfall at Moro for September was 1.64 and for October 1.53 inches. This is nearly twice the normal for these months. The first killing frost (29 degrees) this fall occurred on the night of October 30.



The following tables present the yields of winter and spring wheats, barley, and oats in several dry-land nurseries in the Columbia Basin counties of Oregon in 1927. This is the fourth year that results have been obtained for most of these nurseries. Each year the cereals have been sown in systematically repeated three-row plats and the middle row only was harvested.

Yield of spring-wheat varieties grown in six dry-land nurseries in the Columbia Basin counties of eastern Oregon, in 1927

Variety	C.I.:	Sherman Co.:	Morrow Co.:	Wasco Co.:	Gilliam Co.:	Average		
	No.:	Moro:	Kent:	Eight Mile:	Lexington:			
				Juniper:	Condon:			
				ton:	Flat:			
Onas	6221:	36.3:	40.0:	18.3:	30.8:	18.7	14.9	26.5
Hard Federation Sel.	82:----	28.6:	36.8:	20.2:	39.0:	12.5	12.2	24.9
White Federation	4981:	24.6:	41.6:	21.3:	32.5:	16.9	12.0	24.8
Baart x Federation	8254:	33.2:	37.7:	18.5:	27.3:	17.8	13.5	24.7
Do	8252:	27.6:	40.7:	18.9:	28.0:	18.4	13.7	24.6
Hard Federation Sel.	71:8256:	28.6:	35.7:	23.7:	32.1:	13.8	12.2	24.4
Federation	4734:	26.6:	37.0:	17.5:	32.9:	18.8	13.2	24.3
Bunyip	4166:	29.9:	40.4:	18.5:	30.1:	12.8	11.1	23.8
Hard Federation Sel.	31:8255:	27.9:	35.4:	21.0:	29.2:	13.9	12.2	23.3
Major	4984:	26.1:	35.2:	18.9:	27.3:	17.4	13.0	23.0
Hard Federation Sel.	79:----	25.0:	34.9:	21.5:	29.3:	14.8	11.1	22.8
Do Sel.	60:----	24.5:	34.7:	20.0:	29.6:	14.2	11.7	22.5
Baart	1697:	23.9:	36.0:	19.3:	25.5:	14.0	12.7	21.9
Hard Federation	4733:	20.8:	36.1:	19.8:	30.4:	12.2	11.4	21.8
Pacific Bluestem	4067:	27.0:	35.9:	17.1:	20.4:	16.2	13.4	21.7
Marquis	4158:	22.1:	33.3:	15.7:	22.8:	17.0	12.5	20.6

Yield of winter-wheat varieties grown in seven dry-land nurseries in the Columbia Basin counties of eastern Oregon, in 1927

		Sherman Co.	Morrow Co.	Gilli-	Wasco:	Uma-			
					am Co.:	Co.:	tilla:		
						Co.			
Variety	C.I. or	Moro	Kent	Eight	Lex-	Con-	Juni-	Pen-	Average
	Hybrid No.			Mile	ington	don	per	dle-	
							Flat	ton	
Arcadian x Hd. Fed.	:1992A4-1-7-2:	40.4	:42.5	:30.0	:35.9	:46.9	:22.7	:42.4	:37.3
FortyfoldxHybrid 128:	1998A5-1-1	:34.9	:48.5	:28.0	:36.8	:43.6	:22.1	:46.9	:37.3
Fortyfold x Fed.	:1993A1-2-3-2:	32.9	:43.5	:27.7	:34.9	:52.2	:21.2	:47.3	:37.1
Fortyfold x Hd. Fed.:	1989B1-3-3-2:	41.1	:36.9	:34.1	:40.9	:44.8	:18.1	:37.5	:36.2
Do	:1989B1-1-2-1:	42.6	:38.1	:27.8	:36.2	:49.4	:20.2	:36.9	:35.9
FortyfoldxHybrid 128:	1998A6-7-2-1:	38.0	:43.8	:31.3	:35.2	:36.1	:23.5	:43.8	:35.9
Fortyfold x Fed.	:8247	:34.7	:40.3	:30.9	:35.2	:50.0	:19.1	:40.9	:35.9
Arcadian x Hd. Fed.	:1992A4-4-6-1:	35.1	:42.4	:28.0	:35.6	:41.9	:19.3	:42.2	:34.9
Pl068 x Preston	:5896-3-6	:31.3	:40.3	:19.4	:33.7	:47.5	:22.3	:50.0	:34.9
Hybrid 128*	:4512	:33.2*	:45.3*	:26.9*	:29.1*	:40.1*	:23.6*	:42.2*	:34.3
Fortyfold x Hd. Fed.:	1989B1-5-1-1:	33.0	:38.9	:29.4	:28.2	:46.1	:26.0	:33.1	:33.5

Continued

						Gilli-:Wasco:Uma-:			
		Sherman Co.:	Morrow Co.:	am Co.:	Co.:	tilla:			
							Co.:		
Variety	C. I. or		Eight:	Lex-:		Jun-:	Pen-:	Ave.	
	Hybrid No.:	Moro	Kent	Mile	ing-	Con-	per	dle-	
					ton	den	Flat	ton	
Hybrid 143	:4513	:30.7	:43.5	:28.5	:26.3	:37.9	:23.4	:44.2	:33.5
Hybrid 63	:4510	:31.6	:40.1	:29.2	:30.4	:41.7	:19.2	:41.2	:33.3
FortyfoldxHybrid 128:	1998A1-1	:32.1	:41.6	:27.5	:29.7	:39.8	:22.5	:38.8	:33.1
Jenkin	:5177	:28.9	:36.7	:25.3	:36.7	:36.9	:19.3	:46.8*	:32.9
Federation	:4734	:36.3*	:34.8*	:27.6*	:31.6*	:43.4*	:19.7*	:37.0*	:32.9
Triplet	:5408	:31.1	:35.3	:27.9	:30.6	:43.1	:19.2	:41.6	:32.7
Defiance Winter	:373-141	:30.5	:37.1	:22.3	:30.2	:40.5	:24.0	:43.9	:32.6
Albit	:8275	:31.9	:41.7	:26.3	:29.8	:39.4	:20.9	:38.4	:32.6
Fortyfold x Fed.	:1993A3-1-1-2:	38.8	:34.3	:24.1	:33.6	:43.0	:16.7	:36.4	:32.4
FortyfoldxHybrid 128:	8251	:30.7	:42.0	:23.8	:34.0	:39.6	:19.8	:36.5	:32.3
Fed. x Arcadian	:1990A1-2-1-2:	29.6	:40.5	:26.7	:34.6	:42.1	:18.8	:33.6	:32.3
White Odessa	:4655	:32.0	:40.8	:24.0	:29.4	:41.8	:22.2	:33.6	:32.0
Pl068 x Preston	:8244	:29.2	:38.6	:23.5	:31.5	:34.7	:21.7	:44.2	:31.9
Hybrid 128 x W. Odessa	:231049-2	:29.1	:38.1	:22.6	:27.7	:45.8	:22.9	:37.2	:31.9
Fortyfold x Hd. Fed.:	8248	:27.9	:38.8	:22.4	:33.5	:47.8	:16.2	:36.3	:31.8
Hybrid 128xWh. Odessa:	231049-1	:27.7	:36.5	:24.6	:31.3	:41.5	:22.0	:37.4	:31.6
Blackhull	:6251	:28.9	:34.9	:23.4	:34.7	:32.0	:21.0	:44.7	:31.4
Regal	:7364	:28.3	:34.5	:25.4	:27.1	:40.3	:22.8	:40.5	:31.3
Hybrid 128xWh. Odessa:	23973-1	:27.3	:40.9	:26.2	:25.2	:34.9	:24.2	:38.5	:31.0
Kharkof	:8249	:30.5*	:37.9*	:21.5*	:29.8*	:38.5*	:20.1*	:37.9*	:30.9
Pl068 x Preston	:5896-3-2	:32.3	:37.3	:22.2	:33.2	---	:21.0	:35.2	:30.2
Hybrid 128xWh. Odessa:	23985-1	:33.0	:38.2	:24.4	:23.9	:38.2	:21.4	:31.3	:30.1
Kanred x Marquis	:8245	:27.3	:32.9	:24.9	:28.4	:40.0	:18.7	:38.5	:30.1
Superhard	:8054	:25.6	:32.7	:25.3	:31.2	:34.8	:19.1	:41.2	:30.0
Arcadian x Hd. Fed.	:8246	:27.8	:30.8	:19.6	:32.5	:33.0	:18.7	:39.2	:29.8
Turkey x Florence	:G326W8	:27.4	:34.1	:24.0	:26.2	:39.0	:22.2	:34.7	:29.7
Kanred	:5146	:22.0	:36.3	:19.7	:31.2	:40.8	:20.9	:37.1	:29.7
Hybrid 128xWh. Odessa:	231044-1	:25.5	:34.3	:25.1	:26.8	:37.2	:18.9	:39.8	:29.7
Argentine	:1569-2	:32.1	:32.7	:21.9	:26.5	:37.8	:21.1	:34.2	:29.5
Oro	:8220	:29.0	:36.7	:21.0	:25.3	:37.8	:21.2	:29.8	:28.7
Ridit	:6703	:25.3	:33.4	:19.2	:26.3	:37.5	:22.3	:36.0	:28.6
Pacific Bluestem	:4067	:25.8	:30.9	:22.3	:27.3	:41.1	:20.2	:27.8	:28.0
Turkey x Bd. Minn.	:	:	:	:	:	:	:	:	:
No. 48	:8243	:23.5	:31.3	:22.9	:26.0	:36.7	:23.6	:28.7	:27.5
Fortyfold	:4156	:23.5*	:27.3	:21.3	:25.8	:39.5	:16.0	:23.7	:25.4

\*Average of several check rows

Yield of three varieties of spring oats grown in six dry-land nurseries in the Columbia Basin counties of eastern Oregon, in 1927

		Sherman Co.:	Morrow Co.:	Wasco Co.:	Gilliam Co.:		
	C. I. :			Eight:Lex-:Juniper :			
Variety	No. :	Moro :	Kent :	Mile :ing-: Flat :	Condon :	Average	
				ton :			
Three Grain:	1950 :	39.6 :	62.3 :	49.1 :	44.0 :	20.3 :	27.8 :
Markton	2053 :	35.1* :	59.9 :	38.9 :	32.6 :	18.4 :	29.1 :
Sixty-Day	165-1 :	30.5 :	46.9 :	38.6 :	32.0 :	18.6 :	29.1 :

\*Average of several checks

Yield of eight spring barley varieties grown in six dry-land nurseries in the Columbia Basin counties of eastern Oregon, in 1927

		Sherman Co. :	Morrow Co. :	Wasco Co. :	Gilliam Co. :		
	C. I. :			Eight:Lexing+ Juniper :			
Variety	No. :	Moro :	Kent :	Mile :ton :	Flat :	Condon :	Average
Trebi	936 :	63.6 :	61.4 :	30.5 :	50.6 :	17.7 :	12.9 :
Arequipa	1256 :	64.3 :	59.0 :	28.3 :	45.7 :	17.9 :	12.0 :
Club Mariout	261 :	53.6* :	49.2 :	28.8 :	48.3 :	20.2 :	14.9 :
Hannchen	602 :	41.2 :	55.6 :	27.0 :	44.8 :	21.7 :	20.3 :
Peruvian	935 :	62.3 :	50.9 :	30.0 :	38.3 :	17.6 :	10.9 :
Coast	2301 :	45.7 :	57.3 :	30.6 :	46.3 :	15.7 :	12.1 :
Meloy Sel. 3	4656 :	57.4 :	51.2 :	28.2 :	41.0 :	16.6 :	11.6 :
Chevalier	1419 :	52.2 :	50.0 :	23.7 :	40.4 :	16.9 :	12.5 :

\*Average of several checks

#### CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (November 1)

Rice threshing was completed at the station on October 25. The yields in the plats and in the nursery were better than expected.

A shower on October 26 and a heavy rain on the 30th made the total precipitation for the period from October 26 to 31, 1.69 inches. This rain, the first of the season, has delayed the cutting and threshing of the rice crop. As a rough guess, probably 40 per cent of the rice crop is now threshed and in the warehouses. The sun shone yesterday and today. A brisk north wind is blowing and is drying the ground very rapidly. Threshing probably will start again tomorrow, but there is likely to be considerable wet rice threshed from now on.

On October 17, A. C. Dillman, associate agronomist in charge of flax investigations, visited the Station, and on October 19 and 20 Dr. Victor Talanoff and his daughter, Miss V. Talanoff, of Russia, were visitors. M. A. McCall, agronomist in charge of cereal agronomy investigations, inspected the Station on October 29 and 30.

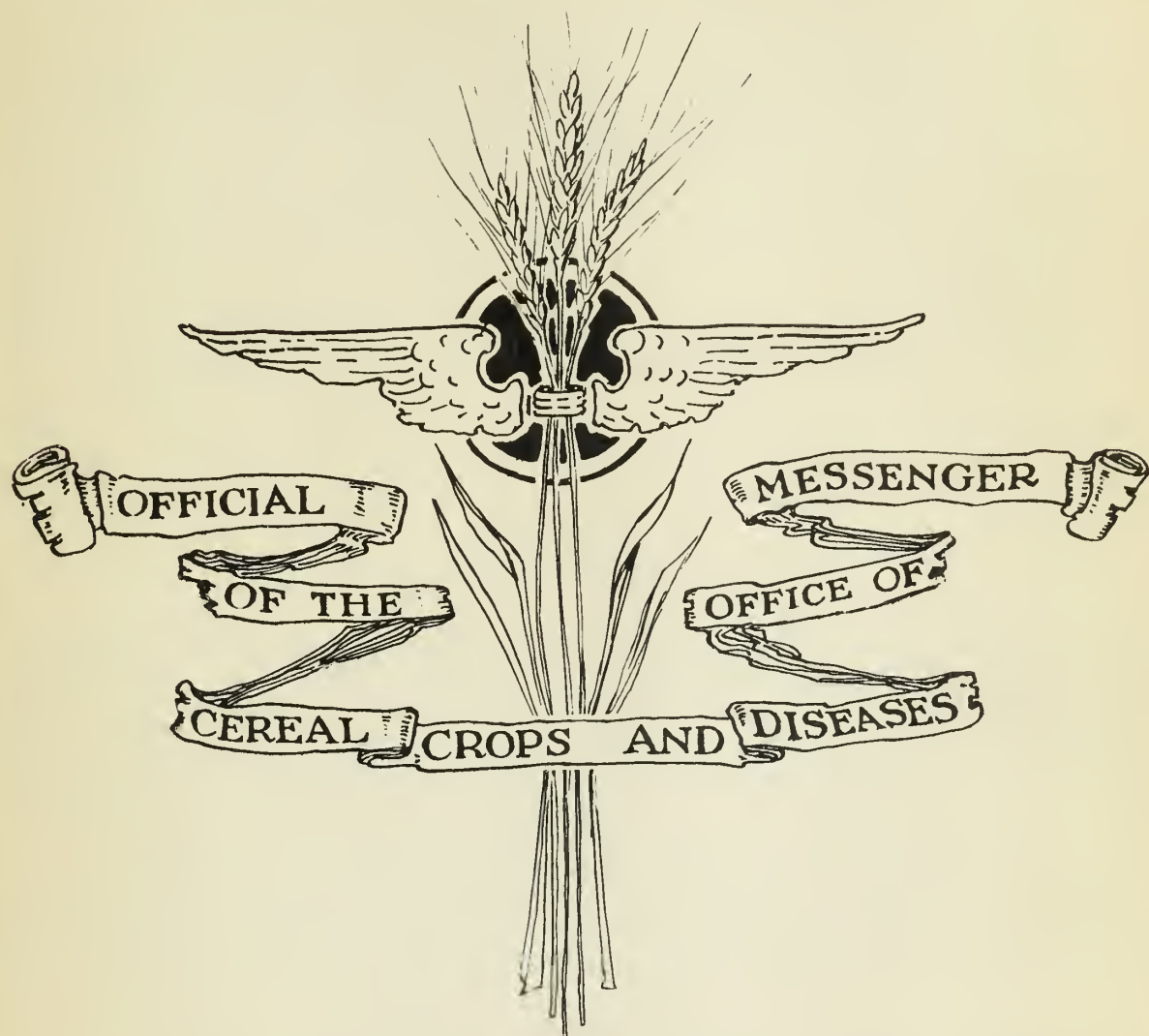
University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)

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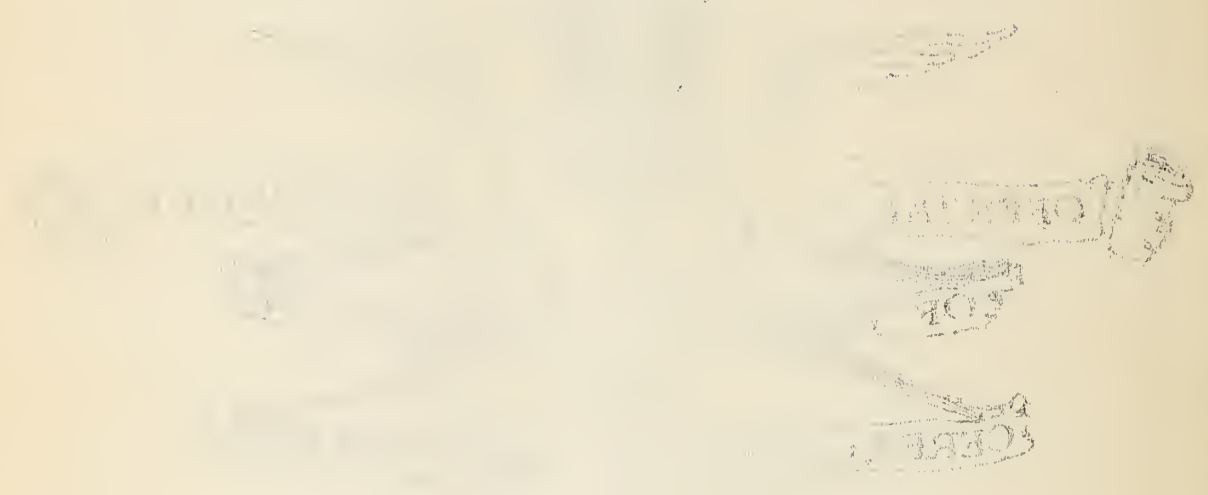


# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

GENERAL INVESTIGATIVE



UNITED STATES DEPARTMENT OF JUSTICE  
BUREAU OF INVESTIGATION

## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 29

November 20, 1927

Personnel (Nov. 11-20) and Field Station (Nov. 1-15) Issue

### PERSONNEL ITEMS

John W. Laringer, G. D. George, W. E. Leer, W. F. Reddy, and A. F. Thiel, members of the barberry-eradication force, have been appointed a committee that has been authorized to attend the International Hay and Grain Show to be held in Chicago from November 26 to December 3. This committee will install a barberry-eradication demonstration which will be explained to visitors at the International Hay and Grain Show.

B. B. Bayles, assistant agronomist in charge of the cooperative cereal experiments that are being conducted at the Judith Basin Substation, Moccasin, Mont., will spend the winter months at Manhattan, Kans., to study the winter hardiness of wheat selections in the greenhouse and refrigeration plant of the Kansas Agricultural Experiment Station.

A. C. Dillman, associate agronomist in charge of flax investigations, returned October 31 from a trip to the southwestern and Pacific Coast States, where he conferred with field station officials, linseed crushers, and others in the interest of flaxseed production. He visited the U. S. San Antonio Field Station September 30 and October 1 and consulted with Supt. Geo. T. Ratliffe in regard to future cooperation. The yields of seed flax varieties as reported on page 351 of the Cereal Courier for October 20 were considered very satisfactory in view of the severe drought which came on before the end of the blossoming period. Many varieties of wheat, oats, and barley were not harvested because of the drought, whereas yields of flax ranged from 5.0 to 8.6 bushels per acre. A heavy rain which occurred on October 1 should insure satisfactory moisture conditions for fall seeding.

On October 3, Mr. Dillman consulted with agronomists at Tucson, Ariz., and on October 4, with Supt. C. J. King of the U. S. Field Station at Sacaton, Ariz. On October 4, he visited the State Experiment Farm at Tempe, Ariz., where experiments with seed flax had been carried on in previous years. October 6, 7, and 8 were spent in company with Supt. E. G. Noble at the U. S. Field Station, Bard, Calif., and in the Imperial Valley of southern California and across the border in Mexico.

At Mexicali, Mr. Dillman consulted with officials of the Colorado River Land Company and of the Globe Cotton Mills Company in regard to the results obtained from nearly 1,000 acres of seed flax grown in 1926-27. Average yields of approximately 15 bushels per acre were obtained, and one field of 80 acres produced 24 bushels per acre. This seed was shipped to Los Angeles after paying the import duty of 40 cents per bushel. Although the yields were fairly satisfactory the crop barely paid the expenses of production, and the officers of the companies thought it doubtful whether they would grow flax again under the present conditions of the market. It seems very doubtful whether flaxseed production can compete with the higher valued crops which can be grown under irrigation in the valleys of Arizona and southern California.

At El Centro, Calif., Mr. Dillman consulted with Mr. V. W. Detar, county agricultural agent, and with Mr. J. B. Norton, formerly of the U. S. Department of Agriculture.

At Los Angeles an interview was had with Mr. A. D. Buckley, vice-president of the Globe Cotton Oil Mills, who has been much interested in the possibility of growing seed flax in the Imperial Valley. At Berkeley, Calif., Mr. Dillman consulted with Dr. F. N. Briggs and with Prof. E. G. Babcock about the genetics of flax. Plans were made to carry on some nursery work with flax at the University Farm at Davis. At Sacramento, Mr. Dillman consulted with Mr. R. E. Blair, State agricultural agent and other agriculturists in regard to the economic possibility of growing flax in the interior valleys of California.

While at Sacramento Mr. Dillman took opportunity to visit the Rice Station at Biggs and was much interested to see the numerous varieties of rice which Mr. Jones had obtained in the Orient and also his many hybrid strains. Only after many failures has Mr. Jones succeeded in developing the technic by which he obtains a high percentage of fertile seed in making crosses between varieties of rice. None of the imported varieties appeared to be equal to many of the pure-line selections developed by Mr. Jones.

On October 19, Mr. Dillman, in company with Mr. E. N. Bates of the Office of Grain Investigations, Bureau of Agricultural Economics, visited two linseed mills at Portland and also the fiber flax industry at Salem, Oreg. About 2,000 acres of excellent fiber flax were grown near Salem in the Willamette Valley. Most of this flax is retted and prepared at the State prison. About 20,000 bushels of seed were obtained. This contributes to the value of the crop, and the surplus seed not required for reseeding finds a ready market at the linseed mills at Portland. A linen spinning mill, the Miles Linen Company, has been established by private capital at Salem. The mill produces a high grade linen cord for the manufacture of fish nets. The manager, Mr. F. J. Gilbraith, told us that the demand for this cord could not be supplied by the entire output of the mill at the present time. Other products of the mill are twine for sewing grain sacks and linen toweling.



On his return to Washington, Mr. Dillman stopped at Bozeman, Mont., Mandan and Fargo, N. Dak., and St. Paul, Minn., in order to consult with agronomists of the agricultural experiment stations in regard to experiments with seed flax.

Dr. H. B. Humphrey, senior pathologist in charge of cereal-rust investigations, reports the occurrence of leaf rust on early-sown winter wheat at the Arlington Experiment Farm near Washington.

Dr. C. W. Hungerford, acting dean of the College of Agriculture of the University of Idaho and acting director of the Idaho Agricultural Experiment Station, and collaborator of this Office, arrived in Washington November 19 en route from Chicago, where he attended the meetings of the American Society of Agronomy. He will stay in Washington about 10 days.

F. D. Richey, agronomist in charge of corn investigations, will go the latter part of November to Ithaca, N. Y., to confer with officials of Cornell University with reference to the prosecution of cooperative investigations on histology, cytology, and morphology of maize. Mr. Richey also will go to Yonkers, N. Y., to confer with members of the staff of the Boyce Thompson Institute relative to physiologic research on maize.

D. E. Stephens, superintendent of the Sherman County Branch Station, Moro, Oreg., arrived in Washington on November 21 en route from Chicago where he attended the meetings of the American Society of Agronomy. Mr. Stephens will remain in Washington about two months.

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#### VISITORS

John E. Craig and Harris L. Parmele, who have for several years served as field agents in barberry eradication in the State of Wisconsin, were Office visitors on November 17.

Dr. S. S. Nehru, of the Indian Civil Service, 17 Georgetown, Allahabad, India, visited the Office on November 17 in connection with broomcorn investigations that are being carried on by him in India.

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MANUSCRIPTS AND PUBLICATIONS

70 A manuscript entitled "Mendelian Factors in the Cowpea (*Vigna species*)," by W. J. Spillman and W. J. Sando, was approved on November 16 for publication in Genetics.

Galley proof of Miscellaneous Publication No. 7 entitled "Bread or Barberries," by Edith M. Patch, was read November 11.

The article entitled "Comparative Studies of Winter Hardiness in Wheat," by John H. Martin, appears in the Journal of Agricultural Research 35 (6): 493-535, figs. 1-12. September 15, 1927. (Received November 11)

An article entitled "Hybrid Corn Breeding," by Joe L. Robinson and A. A. Bryan, appears in the 27th Annual Iowa Year Book of Agriculture (1926): 40-44, illus. 1927. (Cooperative investigations between the Office of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station and the Iowa Corn and Small Grain Growers' Association.)

The paper entitled "The Registered Varieties of American Wheat: Their Class, Origin, and Acreage," by J. Allen Clark, appears in the Journal of the American Society of Agronomy 19 (11): 953-968. November, 1927. (Paper read at the meeting of the Western Section of the American Society of Agronomy held at Moro, Oreg., June 27 to 29, 1927.)

The article entitled "Registration of Improved Wheat Varieties II," by J. Allen Clark, J. H. Parker and L. R. Waldron, appears in the Journal of the American Society of Agronomy 19 (11): 1037-1041. November, 1927.

The article entitled "Registration of Varieties and Strains of Oats II," by T. R. Stanton, H. H. Love, and E. E. Down, appears in the Journal of the American Society of Agronomy 19 (11): 1031-1037. November, 1927.

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FIELD STATION CONDITION AND PROGRESS

## HUMID ATLANTIC COAST STATES (South to North)

## GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

## VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapka, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

## NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

## HUMID MISSISSIPPI VALLEY STATES (South to North)

## LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins)

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, -----)

Iowa State College, Ames (Barberry Eradication, P. W. Rohrbaugh)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, -----)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)

## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)



## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Hamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, H. A. Rodenhiser)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. E. May for G. F. Sprague) (November 17)

Fall sown wheat has made very good growth, and will enter the winter season in first-class condition. Corn yields were much above the average this season.

Nearly all of the field operations have been completed. There is work in the seed house that will require about 10 days and then will come the preparation of the annual report.

M. A. McCall, agronomist in charge of cereal agronomy investigations, visited the Substation on November 15.

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

#### WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

#### SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)

#### NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith)

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.)

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausemus)

#### MONTANA

Judith Basin Substation, Moccasin (Cereal Agronomy, B. B. Bayles)  
[November 15]

Yields of the spring-wheat varieties in plat experiments are presented in the following table. Two pure-line selections of Red Bobs, followed closely by Ceres, Reliance, and Supreme, were the highest yielding hard spring varieties. A selection of Peliss increased from the nursery for the first year outyielded the other durum varieties.

Yields of spring-wheat varieties grown in 50th-acre plats replicated four times at the Judith Basin Substation, Moccasin, Mont., in 1927

<u>Variety</u>	<u>C. I. No.</u>	<u>Yield</u>
Red Bobs Selection	6255-25	24.0
Do	6255-32	22.2
Ceres	6900	22.2
Reliance	7370	22.2
Supreme	3026	21.4
Red Bobs	6255	21.2
Heliss Selection	1584-14	21.0
Kubanka	1440	20.9
Iota x Marquis 1656.34	3004	20.6
Kanred x Marquis, 1713B-2-14-20 N. No. 11		20.3
Federation	8034	20.3
Kitchener	4300	20.2
Modak	7287	19.8
Baart	1697	19.8
Modak	6519	19.6
Lower	3697	19.3
Heliss	1584	18.8
Kota	6248	18.5
Marquis	3641	18.2
Akrona	6881	18.1
Kanred x Marquis, 1713B-9-14	7372	17.7
Marquis 10B		17.6
Ruby	6047	17.3
Kanred x Marquis, 1718B-9-14-42 N. No. 41		17.1
Garnet	8181	16.7
Hard Federation	4733	15.7
Quality	6607	15.7
Kanred x Marquis, 1713B-8-11-64 N. No. 22A		14.5
Do , 1718B-9-11-50 N. No. 33		16.32/
Do 1718B-9-14-24 N. No. 37		15.32/

<sup>a</sup>/Grown only in single plats.

The following table presents the yield and protein data from the varieties and strains of winter wheat grown in three-row blocks replicated three times at the Judith Basin Substation Moccasin, Mont., in 1927. The varieties are ranked in order of yield.

It will be seen that Newturk produced the highest yield per acre, and the greatest yield of protein per acre. Eureka x Minhardi, C. I. 8036, which ranked second in yield along with Kanred x Minhardi, C. I. 8040, which also yielded well, were advanced to the plat experiments in the fall of 1927.

The majority of the strains being tested are winterhardy hybrids. These selections have been made with the idea of combining high yield and quality with winter hardiness. Because of a mild winter which caused little or no killing the strains yielding highest were not necessarily the most hardy. It is encouraging, however, to find that some hybrids have been obtained which yield better than the standard varieties now being grown in Montana, such as Karmont, Montana No. 36, and Kanred, and in addition are more winter hardy. The more promising of these hybrids are being advanced as rapidly as seems advisable to plat experiments for more extensive yield trials and milling and baking tests.

Yield in bushels per acre, per cent protein, and protein in pounds per acre for the winter-wheat varieties grown in three-row blocks replicated three times at the Judith Basin Substation, Moccasin, Mont., in 1926-27

Variety or Cross	Nursery : No.	C.I. : No.	Protein : (Per cent)	Protein : (Lbs. per acre)	Yield : (Bu. per acre)
Newturk	:	6935:	12.6	345	45.6
Eureka x Minhardi	: 76	: 8036:	11.3	299	44.1
Do	: 78	:	11.7	297	42.3
Turkey x Minessa	: 54	:	11.9	300	42.0
Do	: 435	:	10.8	271	41.8
Eureka x Minhardi	: 77	:	11.5	281	40.7
Minard	:	6690:	11.4	274	40.1
Eureka x Turkey	: 491	:	11.2	269	40.0
Kanred x Minhardi	: 123	: 8040:	11.6	278	39.9
Do	: 125	:	11.3	268	39.5
Turkey x Minessa	: 49	:	12.3	288	39.0
Do	: 47	:	12.3	286	38.8
Turkey	:	6152:	11.9	275	38.5
Turkey x Odessa	: 185	:	11.6	267	38.4
Kanred x Bel.-Buff. 5545	: 151	:	11.1	254	38.2
Kanred x Minhardi	: 127	:	11.5	263	38.1
Minhardi x Minturki	: 168	:	9.6	215	37.4
Minhardi (Checks)	:	5149:	11.3	253	37.3
Turkey x Odessa	: 197	:	12.5	279	37.2
Turkey x Minessa	: 44	: 8023:	12.0	266	37.0
Kanred x Minhardi	: 124	: 8041:	11.5	253	36.7
Karmont	:	6700:	11.8	258	36.5
Kanred x Minhardi	: 133	:	9.9	216	36.4
Minturki x Bel.-Buff. 5546	: 515	:	10.6	231	36.3
Turkey x Odessa	: 518	:	11.6	251	36.0
Kanred x Minhardi	: 131	:	9.7	208	35.7
Kanred x Bel.-Buff. 5545	: 155	:	11.6	248	35.6
Turkey x Odessa	: 189	:	11.7	249	35.5
Eureka x Turkey	: 490	:	11.7	248	35.3
Minhardi x Minturki	: 171	:	11.9	248	34.8
Turkey x Odessa	: 195	:	11.8	244	34.5
Kanred x Minhardi	: 126	: 8031:	11.3	232	34.2
Padui x Odessa	: 173	:	11.3	232	34.2
Minturki x Bel.-Buff. 5546	: 164	:	10.3	210	34.0



Continued

Variety or Cross	:Nursery:C.I.:		Protein :		Protein :		Yield	
	No. :	No.:	(Per cent):	(Lbs. per acre):	(Lbs. per acre):	(Bu. per acre)	(Bu. per acre)	
Turkey x Odessa	: 519	:	11.3	:	231	:	34.0	
Nebraska No. 60	:	:6250:	11.5	:	235	:	34.0	
Kanred (Checks)	:	:5146:	10.7	:	218	:	33.8	
Kanred x Buffum	: 115	:8030:	11.2	:	224	:	33.4	
Turkey x Odessa	: 198	:	12.4	:	247	:	33.2	
Kanred x Minhardi	: 494	:	11.6	:	228	:	32.8	
Padui x Bel.-Buff. 5545	: 517	:	10.3	:	202	:	32.7	
Minturki x Bel.-Buff. 5546	: 162	:3033:	10.3	:	201	:	32.6	
Minhardi x Minturki	: 166	:3047:	10.9	:	213	:	32.5	
Do	: 167	:8034:	11.3	:	219	:	32.3	
Kanred x Minturki	: 142	:	11.1	:	206	:	30.9	
Bel.-Buff. 5548 x Odessa	: 130	:	11.6	:	203	:	29.2	
Do 5545 x Odessa	: 177	:	12.7	:	219	:	28.7	
Kanred x Minessa	: 136	:8045:	10.8	:	181	:	27.9	

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

Montana Agricultural Experiment Station, Bozeman, Mont. (LeRoy Powers and H. E. Tower) (November 15) [In cooperation with the Montana Agricultural Experiment Station.]

A dry-land, spring-wheat nursery was grown at the Montana Agricultural Experiment Station at Bozeman from seed furnished by J. Allen Clark, agronomist in charge of western wheat investigations, Office of Cereal Crops and Diseases. The varieties and hybrids grown in 3-row blocks replicated three times are listed in the following table, in the order of their average yields. With an abundance of moisture present and with the absence of rust or other plant diseases the capacity for yield under ideal conditions is revealed. It will be noted that Reliance and Supreme considerably outyielded such varieties as Marquis, Kota, Ceres, and Hope.

Average yield in bushels per acre of 32 spring-wheat varieties and hybrids grown in three systematically replicated 3-row blocks at the Montana Agricultural Experiment Station, Bozeman, Mont., in 1927

Variety or hybrid	:C.I:Nursery:		Hybrid :		Yield	
	No.:	No. :	No. :	(Bu. per acre)		
Kanred x Marquis	:	: 11	:B-2-14-20	:	64.7	
Reliance	:7370:		:B-8-11	:	61.7	
Kanred x Marquis	:	: 14	:B-8-11-16	:	60.3	
Do	:	: 41	:B-9-14-42	:	60.3	
Supreme	:8026:		:	:	58.3	
Kanred x Marquis	:	: 33	:B-9-11-50	:	58.0	
Do	:	: 28	:B-9-11-27	:	57.0	
Do	:	: 37	:B-9-14-24	:	57.0	
Do	:	: 22A	:B-8-11-64	:	56.7	
Marquis x Hard Federation	:	: 377	:2-1-34-31	:	54.7	

## Continued

Variety or hybrid	: C.I. :	Nursery :	: Yield
	: No. :	No. :	: (Bu. per acre)
Kanred x Marquis	: :	36 : B-9-14-22	: 51.3
Do	: :	20A : B-8-11-40	: 50.7
Do	: :	II-17-40:	: 50.7
Do	: :	II-18-44:	: 50.3
Marquis x Erivan	: :	239 : B-3-12-6	: 50.0
Marquis x Hard Federation	: :	: 2B-1-24-63	: 49.3
Kota x Marquis	: :	1656.84 :	: 49.3
Do	: :	1656.81 :	: 48.3
Kanred x Marquis	: :	2 : B-2-14-1	: 47.3
Do	: :	17 : B-8-11-22	: 47.0
Do	: :	32 : B-9-11-48	: 46.7
Do	: :	3 : B-2-14-2	: 44.7
Mondak	: 7287:	:	: 44.0
Kota x Marquis	: :	1656.109:	: 42.3
Marquis <sup>a/</sup>	: 3641:	:	: 41.0
Kota x Hard Federation	: :	285 : A-1-16-4-3	: 40.0
Ceres	: 6900:	:	: 39.3
Kota	: 5878:	:	: 39.3
Marquis x Sunset	: :	477 :	: 36.3
Hope	: 8173:	:	: 35.7
Kota x Galgalos	: :	482 :	: 35.0
Marquis x Prelude	: :	2413 :	: 32.7

<sup>a/</sup> Average of 9 check rows

## WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones) (November 15)

There have been recorded 4.46 inches of rain since October 25.

The Rice Growers Association estimate that approximately 65 per cent of the California rice crop has been threshed and is under cover; 27 per cent is in the shock, and about 8 per cent still is uncut.

With 10 days or two weeks of good drying weather the shocked rice could be threshed and warehoused without much damage. The expense of threshing and banking out will be materially increased, however, because of the softness of the ground and the toughness of the rice. Today the wind is in the north and the clouds are disappearing, which is encouraging.

University Farm, Davis (Cereal Agronomy, V. H. Florell)

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. M. Briggs)

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Harney Branch Experiment Station, Burns, Oregon, Obil Shattuck, Superintendent.  
(November 1)

Harney County has had a wonderful crop season. The average yield of wheat produced in the Valley on the sub-irrigated lands probably will be about 45 bushels per acre. Several carloads have been shipped out for milling purposes and several farmers are holding their grain.

On the irrigated tracts on the Station there are the usual excellent yields. There are now two wells, both of which produce excellent flows of water. One is the original 8-inch hole and the new one is an 18-inch hole that supplies an average delivery of 1.7 second ft.

The following tables present the results obtained from spring and winter wheats and spring oats all grown under irrigation.

Average plat yields of spring wheat grown under irrigation at the Harney Branch Experiment Station, Burns, Oreg., in 1927

<u>Variety</u>	<u>Yield (Bu. per acre)</u>
Federation	63.4
Onas	62.5
Major	62.1
Oudebaard	53.7
Marquis	57.3
Red Bobs	51.9
Canberra	51.2
Hard Federation	50.8
Bobs	50.7
White Federation	49.9
Baart	45.3
Sunset	41.1
Hard Federation Selection	41.0

Average plat yields of winter wheat grown at the Harney Branch Experiment Station, Burns, Oreg., under irrigation, in 1927

<u>Variety</u>	<u>Yield (Bu. per acre)</u>
Hybrid 63	30.2
Blackhull	76.9
Hybrid 128	70.4
Turkey	67.5
Martin	65.7

Average plat yields of spring oats grown under irrigation at the Harney Branch Experiment Station, Burns, Oreg., in 1927

<u>Variety</u>	<u>Yield (Bu. per acre)</u>
Markton	103.7
Three-Grain	92.1
Idamine	86.6
Golden Rain	84.3
Western Wonder	81.1
Swedish Select	79.8
Early Mountain	75.0
Fulghum	68.2
Hull-less	50.2



## AMERICAN SOCIETY OF AGRONOMY

The Twentieth Annual Meeting of the American Society of Agronomy was held at Congress Hall, Chicago, Ill., November 17 and 18.

The officers chosen for 1928 are as follows:

President, A. G. McCall, Washington, D. C. (Bureau of Chemistry & Soils)

First Vice-President, E. F. Gaines, Pullman, Wash.

Second Vice-President, M. J. Funchess, Auburn, Ala.

Third Vice-President, W. W. Burr, Lincoln, Nebr.

Fourth Vice-President, A. B. Beaumont, Amherst, Mass.

Editor, J. D. Lockett, Geneva, N. Y.

Secretary-Treasurer, P. E. Brown, Ames, Iowa.

The following five members were made Fellows of the Society:

R. A. Oakley, Washington, D. C.

H. K. Hayes, University Farm, St. Paul, Minn.

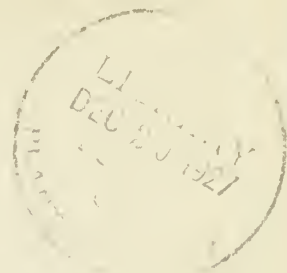
T. A. Kiesselbach, Lincoln, Nebr.

A. G. McCall, Washington, D. C.

E. J. Alway, University Farm, St. Paul, Minn.

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## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 13

No. 30

November 30, 1921  
Personnel (Nov. 21-30) and Project Issue

### PERSONNEL ITEMS

Dr. Carleton F. Ball, senior agronomist in charge, returned on November 24 from attendance at the Chicago annual meetings of the Association of Land-Grant Colleges and the American Society of Agronomy, with subsequent visits to Illinois, Indiana, and Ohio. He reports that in attendance, nature of program, and character of the component papers, both meetings seemed to reach a new high-water mark. The general theme of the Land-Grant College meeting was the agricultural situation. A fitting climax was the presentation at the final session of the report of the committee appointed a year ago to canvas the causes, results, and remedies of the existing agricultural depression.

At the meeting of the American Society of Agronomy, Dr. Ball reported as Chairman of the Committee on Agronomic Terminology, covering two lines of activity during the year. The first was a discussion and recommendation of the use of English plurals for the thousands of Anglicized Latin nouns used in scientific and professional writing, both technical and popular. This paper will appear in an early issue of American Speech. The second subject was a discussion and recommendation of the use of accurate and self-explaining median terms in a series of adjectives of comparison. A hundred or more suggested terms and a discussion of the correct method of forming them are embodied in a paper which will appear in an early issue of the Journal of the American Society of Agronomy. At the business meeting which followed, Dr. Ball was elected Agronomic Advisor for the National Research Council. This officer takes the place of the former Committee on Cooperation with the National Research Council.

On November 21, Dr. Ball visited the plant of the Cornstalks Products Company at Tilton, near Danville, Ill. Through the courtesy of Harvey J. Sconce, in charge of the raw materials division, the day was spent in the field studying the various methods of obtaining cornstalks. These included mowing with various types of mowers, raking with hay rakes and sweep rakes, and baling in the field; also cutting with the corn binder and baling either with or without shredding. The third method comprised cutting the unpicked corn with corn binders, hauling to a stationary husker-shredder, and baling the shredded stalks direct from the shredder. As the cornstalks were blown down badly by October storms, all types of machinery and methods are being given a very severe test. The plant includes the large acreage and buildings of a former manufacturing company. It is expected to have the pilot mill in operation before the end of December, and the entire plant completed by the end of February. In the meantime, the assembling of baled cornstalks at the factory is progressing rapidly from a radius of 15 or 20 miles in all directions. The company expects to manufacture the pulp for shipment to rayon mills, and not the rayon itself. A preliminary shipment of baled stalks from the Iowa Experiment Station has been utilized in the New York laboratory of the company. The development of effective machinery for gathering stalks in the field should be of great value in the control of the corn borer.

M. A. McCall, agronomist in charge of cereal agronomy, returned to Washington on November 25 after a field trip which included stops in the Southern States, Pacific Coast States, and Central States, and attendance at the meetings of the American Society of Agronomy in Chicago on November 17 and 18.

At this late season, cereal crops of the current year were harvested and out of the way, except in central Montana where a small acreage of wheat was still in shock, and in the Palouse district of eastern Washington, where, on account of wet weather, a certain percentage of grain still remained to be harvested. In the case of eastern Washington, this is an unusual condition, due to the unusually heavy rains of the current late summer and fall. Grain harvested with the binder and with the combine was alike affected. Such grain represents a small percentage of the total crop, although it is likely that some fields will be a total loss.

In the Southern States, winter grain was sown, or being sown. In the Pacific Northwest, the condition of fall-sown grain in the dry-farming areas was excellent and in central Washington was better than during any season since the fall of 1914. Prospects for next year's crop in this general area are good, both because of the condition of the fall-sown grain and because of the relatively large amount of moisture stored in the soil.

The condition of fall-sown grain was good both in Montana and Nebraska.



Following the meetings of the American Society of Agronomy, stops were made in Illinois and Indiana, where the corn experiments conducted at Bloomington, in cooperation with Funk Brothers Seed Co., and at Lafayette, in cooperation with the Purdue University Agricultural Experiment Station, were inspected. A stop also was made at Danville, Ill., where the manufacturing plant and the field operations of the Cornstalks Products Company were inspected.

Charles E. Chambliss, associate agronomist in charge of rice investigations, will leave on December 5 for Havana and other points in Cuba. Mr. Chambliss is going under the auspices of the Tropical Plant Research Foundation, Dr. W. A. Orton, Director, to inspect experimental plantings of rice on two large sugar cane plantations and large areas where rice growing on a commercial scale may be attempted. He also will attempt to collect seed of rices now grown on the Island by the mountain people for home use.

Dr. O. E. Leighty, agronomist in charge of eastern wheat investigations, will go to Lafayette, Ind., on December 5 to confer with officials of the Purdue University Agricultural Experiment Station regarding cooperative wheat investigations, including milling and baking studies. Dr. Leighty will return about December 15.

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# MANUSCRIPTS AND PUBLICATIONS

The following four abstracts were approved on November 28 for publication in Phytopathology:

- 71 The Effective Methods of Eradicating Rhamnus Species Susceptible to Puccinia coronata Corda, by S. M. Dietz and L. D. Leach.
- 72 New Physiologic Forms of Stinking Smut in Wheat, by E. F. Gaines.
- 73 Inheritance of Resistance to Puccinia sorghi in Maize, by E. B. Mains.
- 74 Virus Diseases Observed by the Allison V. Armour Expedition, by H. H. McKinney.

(These abstracts represent papers to be presented at the winter meetings of the American Phytopathological Society at Nashville, Tenn.)

75 A manuscript entitled "Yields of Barley in the United States and Canada, 1922-1926," by H. V. Harlan, L. H. Newman, and Mary L. Martini, was submitted November 29 for publication as a Technical Bulletin of the Department.

76 A manuscript entitled "The Influence of Oxygen and Carbon Dioxide on the Growth of Ophiobolus graminis in Pure Culture," by Hurley C. Fellows, was submitted November 30 for publication in the Journal of Agricultural Research.

Galley proof of article entitled "Dehulling Barley Seed with Sulphuric Acid to Induce Infection with Covered Smut," by Fred N. Briggs, for publication in the Journal of Agricultural Research, was read November 23.

Galley proof of Technical Bulletin 51 entitled "Broomcorn Experiments at the United States Dry-Land Field Station, Woodward, Oklahoma," by John B. Sieglinger, was read November 30.

Page proof of Technical Bulletin 39 entitled "Inheritance of Awnedness, Yield, and Quality in Crosses between Bobs, Hard Federation, and Propo Wheats at Davis, California," by J. Allen Clark, Victor H. Florell, and John R. Hooker, was read November 30.

The article entitled "Soil Factors Influencing the Development of Mosaic Disease in Winter Wheat," by Robert W. Webb, appears in the Journal of Agricultural Research 35 (7): 587-614, figs. 1-8. October 1, 1927. (Received Nov. 30) (Cooperation between the Office of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

The article entitled "Factors Affecting the Popping Quality of Pop Corn," by J. G. Willier and Arthur M. Brunson, appears in the Journal of Agricultural Research 35 (7): 615-624, figs. 1-2. October 1, 1927. (Received Nov. 30) (Cooperation between the Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

DEPARTMENT MOTION PICTURES

A very interesting two-reel film showing the extensive power farming operations of the Thomas D. Campbell Farming Corporation near Hardin, Mont., was shown November 23 before a large group of Department of Agriculture officials in the motion picture projection room of the Extension Service. The film showed the operations of plowing, seeding, harvesting, thrashing, and hauling to market. One feature of the film was planned to show the contrast between the usual method of harvesting with the binder and thrashing from the shock as compared to the more recent and economical "windrow" method. A swath 40 feet wide is deposited in one windrow by means of carriers of different lengths adapted to each of the four harvesters drawn in tandem fashion by one tractor. The harvested grain is allowed to dry in the windrow when it is threshed with a combine with a hay loader attachment which gathers up the grain from the windrow.

Another scene showed a threshing operation when 4,340 bushels of wheat were threshed by a single stem threshing rig in a 14-hour day.

Another scene showed the harvesting of wheat and flax grown in mixture. When winter wheat is partly winterkilled flax is sown in the field early in the spring and the two crops are harvested and threshed together.

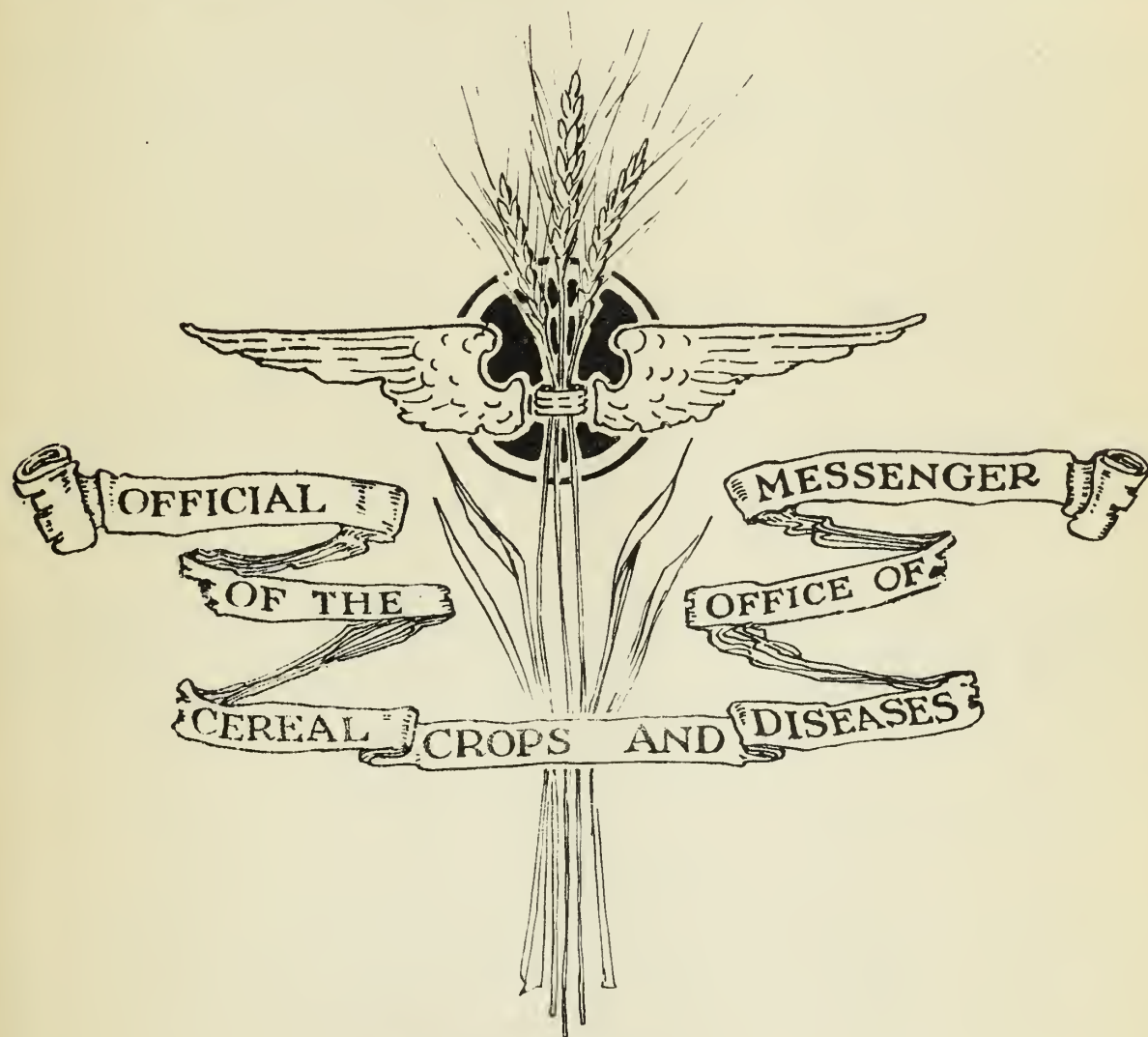
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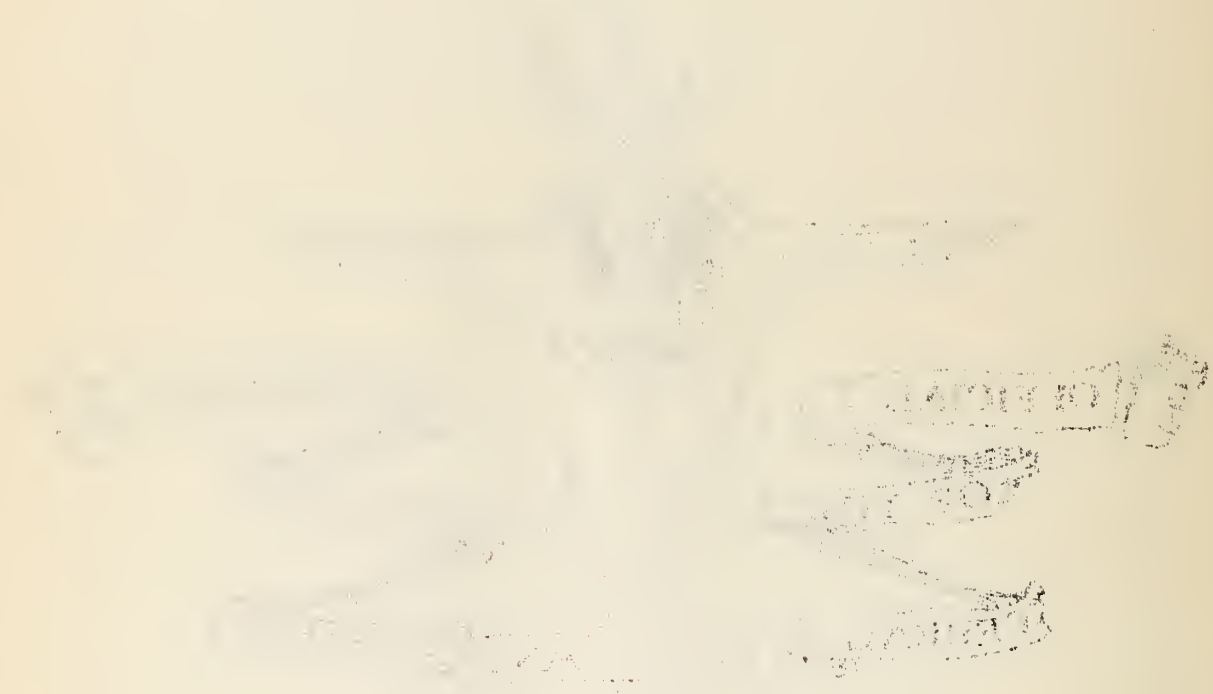
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CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

# CHIEF COURT



UNITED STATES OF AMERICA  
IN SENATE  
JANUARY 1870

## CEREAL COURIER

Official Messenger of the Office of Cereal Crops and Diseases  
Bureau of Plant Industry, U. S. Department of Agriculture  
(NOT FOR PUBLICATION)

Vol. 19

No. 31

December 15, 1927

Personnel (Dec. 1-15) and Field Station (Nov. 16-30) Issue

### PERSONNEL ITEMS

V. H. Florell, associate agronomist in charge of the cooperative cereal experiments at University Farm, Davis, Calif., has been authorized to go to Pomona College, Pomona, Calif., to study specimens of Avena species collected in California. Mr. Florell will return to his headquarters at Davis early in January.

G. A. Wiebe, assistant agronomist in charge of the cooperative cereal experiments at the Aberdeen Substation, Aberdeen, Idaho, will come to Washington about December 24 to prepare a report of his investigations of the past year and to confer with Department officials regarding future work.

### VISITORS

Bert Ball, Director of Plans, National Crop Improvement Committee, 105 La Salle St., Chicago, Ill., was an Office visitor on December 9, 12, and 14. Mr. Ball is interested in obtaining information for conducting a comprehensive campaign this next spring for the improvement of oats, particularly in the States of Iowa, Minnesota, North Dakota, and South Dakota. Statements on the preparation of the seed bed, seed treatment, rate and date of seeding, the proper time to harvest, adapted varieties, etc., are being prepared by Mr. Stanton for use in a circular which Mr. Ball is planning to publish for distribution next spring. Similar circulars have been prepared by agronomic workers in each of the States named.

L. Gupta, Works Manager, Dharamsi Morarji Chemical Co., Ltd., Bombay, India, on December 3 conferred with Office pathologists regarding cereal diseases.

Harold R. Harris, General Manager of the Huff Deland Dusters, Inc. (Insect Poisoning by Airplane), of Monroe, La., was an Office visitor on December 14 to discuss the use of airplanes in dusting wheat to control stem rust.

Dr. L. R. Jones, Chairman of the Department of Plant Pathology of the University of Wisconsin, visited the Office on December 10 and 12.

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MANUSCRIPTS AND PUBLICATIONS

77 A manuscript entitled "Corn Breeding," by A. M. Brunson, was approved December 6 for publication in a special report of the Kansas State Board of Agriculture.

78 An article entitled "Immunity of Hope Wheat from Black Stem Rust, Inherited as a Dominant Character," by J. A. Clark, and E. R. Ausemus, was approved December 15 for publication in the Journal of the American Society of Agronomy.

An article by C. R. Ball on "Stem Rust of Wheat in 1927," to which the Editor gave the title "Eradicators Have a 'Rusty' Innings," appears in The Dakota Farmer 47 (23): 971, 984. December 1, 1927. It describes the conditions under which the rust appeared this season, the progress of barberry eradication, and the progressive reduction in rust losses since eradication was well started.

Wis. State Dept. Agr. Bul. 34 entitled "Black Stem Rust and the Barberry Eradication Campaign in Wisconsin," by Wm. A. Walker, bearing date of November, 1927, was received December 5. (Cooperation between Office of Cereal Crops and Diseases and the Wisconsin Department of Agriculture and the Agricultural Extension Service of the University of Wisconsin.)

The article entitled "A Trigeneric Hybrid of Aegilops, Triticum, and Secale," by C. E. Leighty and W. J. Sando, appears in the Journal of Heredity 18 (10): 433-442, figs, 1-5. October, 1927. (Received December 7)

BARBERRY DEMONSTRATION AT INTERNATIONAL GRAIN AND HAY SHOW

A very attractive barberry demonstration was placed at the International Grain and Hay Show, Chicago, the week of November 23. The demonstration was designed by Mr. W. E. Leer and erected by Mr. Leer and Mr. G. D. George. Messrs. W. E. Leer, J. W. Baringer, W. F. Reddy, and A. F. Thiel attended the demonstration during the week of the Show.

The demonstration emphasized two important phases of the barberry-eradication campaign,- "Why Kill the Common Barberry," and "How Kill the Common Barberry." A colored bromide enlargement (4 by 6 ft.) of a barberry bush adjacent to a barley field ruined by the rust from this bush, served as a background for the "Why Kill" side of the demonstration. Rusted grain specimens and a Davis display machine with colored plates, showed the disastrous results of trying to grow both barberries and small grains in the same community. On the "How Kill" side of the demonstration, a colored bromide (4 by 6 ft.), showing the proper method of applying salt to barberries, served as a background. A Davis display machine on this side of the demonstration showed the proper method of applying salt and the quantity to use in killing barberries.

Living common and Japanese barberry bushes were exhibited so that the distinguishing characters of the two kinds of bushes could be studied. Small colored cards also emphasized these distinguishing characters.

In its make-up this demonstration was nearly ideal. The space allotted to it was large and the material was not crowded. Only two ideas were emphasized. An electric lighting arrangement drew attention alternately to each side of the demonstration. The use of these alternating lights, and the motion of the Davis display machines served to call attention to the exhibit. Specimens of living bushes, rusted grains, and kernels of wheat from healthy and rusted plants drove home the message of "Why Kill."

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## FIELD STATION CONDITION AND PROGRESS

### HUMID ATLANTIC COAST STATES (South to North)

#### GEORGIA

State College of Agriculture, Athens (Cereal Agronomy, R. R. Childs)

#### VIRGINIA

Arlington Experiment Farm, Rosslyn (Small Grain Agronomy, J. W. Taylor)

Arlington Experiment Farm, Rosslyn (Corn Breeding, F. D. Richey)

Arlington Experiment Farm, Rosslyn (Cereal Smuts, V. F. Tapke, Acting in Charge)

Arlington Experiment Farm, Rosslyn (Virus Diseases, H. H. McKinney)

#### NEW YORK

Cornell University Agricultural Experiment Station, Ithaca (Cereal Breeding, H. H. Love)

### HUMID MISSISSIPPI VALLEY STATES (South to North)

#### LOUISIANA

Rice Experiment Station, Crowley (Rice Agronomy, J. M. Jenkins) (December 7)

The weather of the first half of November was very dry. Farmers were complaining that the land was too dry to plow. This condition was relieved by a heavy rain on the 16th. The total precipitation was 4.00 inches, which is 0.86 inch less than last year and the same as the 17-year average for the period 1910 to 1926, inclusive.

The temperature was rather high during the entire month. The lowest recorded was 35 degrees F. The maximum was between 80 degrees and 90 degrees F. for 15 days.

Work on the station progressed nicely. All threshing was completed. Soybeans and seed rice were recleaned, and plowing was commenced.

Agricultural Experiment Station, Baton Rouge (Corn Breeding, H. F. Stoneberg)

## MISSOURI

Agricultural Experiment Station, Columbia (Cereal Agronomy, L. J. Stadler)

## TENNESSEE

Agricultural Experiment Station, Knoxville (Corn Breeding, L. S. Mayer)

## IOWA

Agricultural Experiment Station, Ames (Oat Breeding, L. C. Burnett)

Agricultural Experiment Station, Ames (Corn Breeding, M. T. Jenkins)

Agricultural Experiment Station, Ames (Crown Rust of Oats, -----)

Iowa State College, Ames (Barberry Eradication, P. W. Rohrbaugh)

## ILLINOIS

Funk Bros. Seed Co., Bloomington (Corn Root, Stalk and Ear Rots, J. R. Holbert)

Box 72, Post Office Building, Urbana (Barberry Eradication, -----)

## INDIANA

Purdue University Agricultural Experiment Station, La Fayette (Corn Rots and Metallic Poisoning, G. N. Hoffer)

Purdue University Agricultural Experiment Station, La Fayette (Leaf Rusts, H. S. Jackson and E. B. Mains)

Purdue University College of Agriculture, La Fayette (Barberry Eradication, W. E. Leer)

## OHIO

Ohio State University, College of Agriculture, Columbus (Barberry Eradication, J. W. Baringer)

## MICHIGAN

Agricultural College, East Lansing (Barberry Eradication, W. F. Reddy)



## WISCONSIN

Agricultural Experiment Station, Madison (Wheat Scab, J. G. Dickson)

Department of Agriculture, State Capitol Annex, Madison (Barberry Eradication, W. A. Walker)

## MINNESOTA

Agricultural Experiment Station, University Farm, St. Paul (Wheat Breeding, O. S. Aamodt)

Agricultural Experiment Station, University Farm, St. Paul (Stem Rust, E. C. Stakman)

Agricultural Experiment Station, University Farm, St. Paul (Flax Rust, H. A. Rodenhiser)

Agricultural Experiment Station, University Farm, St. Paul (Barberry Eradication, L. W. Melander)

## GREAT PLAINS AREA (South to North)

## OKLAHOMA

Woodward Field Station, Woodward (Grain Sorghum and Broomcorn, J. B. Sieglinger)

## KANSAS

Agricultural Experiment Station, Manhattan (Cereal Breeding, J. H. Parker)

Agricultural Experiment Station, Manhattan (Corn Breeding, A. M. Brunson)

Agricultural Experiment Station, Manhattan (Wheat Foot Rots, Hurley Fellows)

Agricultural Experiment Station, Manhattan (Wheat Leaf Rust, C. O. Johnston)

Hays Branch Experiment Station, Hays (Cereal Agronomy, A. F. Swanson)  
(December 2)

The total precipitation for November was 0.03 inch. Since 1868 there have been eight other Novembers in which the precipitation was zero or less than 0.03 inch. However, no precipitation occurred in October of this year, so that October and November of 1927 are the two driest months on record since 1868. The weather was mild and pleasant. Farmers have made rapid progress with their work.

Corn husking is about two-thirds finished in northwestern Kansas. The average yield probably will run about 25 bushels for this section. The acreage is very large. However, the late corn did not fill or mature any too well. About half the crop should be of a good grade.

Northwestern Kansas was extremely dry last year. Most of the wheat was a failure by the early spring of 1927. Under unpromising conditions the farmers planted their abandoned fields of wheat to corn. While the yield is not so large, yet the financial situation of the area has been greatly improved.

Wheat in the vicinity of Hays is in excellent condition wherever the seed-bed preparation was timely. Where the seed bed was neglected moisture is needed. The section to the west and north, or north of Hays, is rather dry and in some counties it is reported that there is little good wheat.

The field work on the Cereal Project has been completed for the season and the preparation of the annual report is under way.

## COLORADO

Agricultural College, Ft. Collins (Barberry Eradication, E. A. Lungren)

## NEBRASKA

North Platte Substation, North Platte (Cereal Agronomy, R. W. May for G. F. Sprague) (December 5)

The yield in bushels per acre together with per cent protein and protein per acre of the spring-wheat varieties grown in the nursery are presented in the following table. The leading strains are selections of the Hard Federation x Marquis crosses. Reward is the highest yielding named variety. Other early wheats, namely, Prelude and Sunset were low in yield. Neither earliness nor rust resistance was an important factor affecting yields. The protein content varied from 14.0 to 17.5 per cent and the yields from 9.3 to 25.5 bushels per acre.

Yield in bushels per acre, per cent protein and protein in pounds per acre for the spring wheat varieties replicated three times at the North Platte Substation, North Platte, Nebr., in 1927

Variety or hybrid	: Nursery: C. I. : Protein : Protein : Yield
	: No. : No. : (Per cent) (lbs. per A. : (Bu. per A.)
Hard Federation x Marquis	: 679: : 15.7 : 240 : 25.5
Do	: 709: : 15.6 : 237 : 25.3
Do	: 434: : 15.8 : 235 : 24.8
Do	: 678: : 16.5 : 242 : 24.4
Kota-Hd. Fed. x Kanred-Marquis	: 702: : 14.3 : 205 : 23.9
Marquis x Hard Federation	: 377: : 15.4 : 215 : 23.3
Do	: 378: : 15.7 : 219 : 23.3

Continued

Variety or hybrid	Nursery : No.	C.I. : No.	Protein : (Per cent)	Protein : (Lbs. per A.)	Yield : (Bu. per A.)
Reward	:	:8182:	16.9	: 235	: 23.2
Marquis x Kanred	: II-17-40:	8018:	16.5	: 230	: 23.2
Marquis x Hard Federation	: 707:	:	15.7	: 216	: 22.9
Marquillo	:	:6887:	16.9	: 231	: 22.8
Marquis x Kanred	: II-18-44:	8019:	15.2	: 203	: 22.3
Hard Federation x Marquis	: 675:	:	15.7	: 210	: 22.3
Administer	:	:8196:	15.7	: 209	: 22.2
Kota x Marquis	: 1656.84 :	8004:	15.7	: 209	: 22.2
Supreme	:	:8026:	15.4	: 204	: 22.1
Kota-Hd. Fed. x Kanred-Marquis	: 701:	:	15.5	: 204	: 21.9
Marquis x Hard Federation	: 394:	:	14.6	: 192	: 21.9
Garnet	: 8181:	:	16.1	: 209	: 21.6
Kota x Marquis	: 1656.81 :	8185:	16.8	: 215	: 21.3
Ceres	:	:6900:	15.3	: 196	: 21.3
Kanred x Marquis	: 36:	:	16.5	: 211	: 21.3
Marquis x Hard Federation	: 705:	:	16.2	: 205	: 21.1
Do	: 457:	:	15.6	: 197	: 21.0
Do	: 455:	:	16.2	: 201	: 20.7
Do	: 672:	:	15.5	: 190	: 20.4
Kota x Marquis	: 1656. :	:6898:	16.4	: 201	: 20.4
Hard Federation x Marquis	: 461:	:	15.6	: 190	: 20.3
Kota-Hd. Fed. x Kanred-Marquis	: 700:	:	15.3	: 186	: 20.3
Hard Federation x Marquis	: 680:	:	16.1	: 195	: 20.2
Marquis x Erivan	: 239:	:	17.2	: 208	: 20.2
Marquis x Hard Federation	: 393:	:	15.4	: 186	: 20.1
Do	: 677:	:	14.9	: 175	: 19.6
Hope	:	:8178:	15.8	: 186	: 19.6
Kota-Hd. Fed. x Kanred-Marquis	: 699:	:	16.9	: 196	: 19.3
Kota x Hard Federation	: 295:	:	14.8	: 169	: 19.0
Kanred x Marquis	: 41:	:	15.6	: 178	: 19.0
Reliance Selection 22	: 22A:	:	15.1	: 172	: 19.0
Kota x Hard Federation	: 285:	:	15.5	: 175	: 18.8
Kota x Marquis	: 1656.97 :	8005:	15.4	: 174	: 18.8
Marquis (Average 6 checks)	:	:	16.5	: 184	: 18.6
Reliance Selection 18	: 25:	:	15.6	: 171	: 18.3
Kanred x Marquis	:	:7372:	16.3	: 178	: 18.2
Reliance	:	:7370:	15.5	: 169	: 18.2
Marquis x Hard Federation	: 674:	:	15.2	: 164	: 18.0
Marquis x Erivan	: 773:	:	16.6	: 177	: 17.8
Kanred x Marquis	: 37:	:	16.3	: 174	: 17.8
Hard Federation x Prelude	: 257:	:	15.4	: 164	: 17.7
Marquis x Prelude	: 914:	:	17.4	: 185	: 17.7
Marquis x Hard Federation	: 399:	:	14.6	: 154	: 17.6
Hard Federation x Kota	: 340:	:	15.7	: 164	: 17.4
Kanred x Marquis	: B-5-4 :	:	16.2	: 169	: 17.4
Hard Federation x Marquis	: 445:	:	14.9	: 152	: 17.0
Marquis x Hard Federation	: 396:	:	14.6	: 146	: 16.7
Do	: 436:	:	14.9	: 148	: 16.6
Kota x Galgalos	: 364:	:	15.4	: 153	: 16.6
Marquis x Erivan	: 915:	:	17.5	: 173	: 16.5



## Continued

Variety or hybrid	Nursery : : No.	C.I. : : No.	Protein : (Per cent)	Protein : (Lbs. per A.)	Yield : (Bu. per A.)
Hard Federation x Prelude	: 258:	: 16.3	: 160	: 16.4	
Do	: 246:	: 16.7	: 164	: 16.4	
Marquis x Hard Federation	: 402:	: 15.9	: 155	: 16.2	
Kota x Galgalos	: 365:	: 14.0	: 135	: 16.1	
Marquis x Hard Federation	: 400:	: 14.6	: 139	: 15.9	
Hard Federation x Kota	: 338:	: 16.3	: 156	: 15.9	
Marquis x Hard Federation	: 723:	: 15.5	: 146	: 15.7	
Do	: 676:	: 15.5	: 142	: 15.3	
Do	: 395:	: 14.7	: 133	: 15.1	
Kota x Hard Federation	: 318:	: 16.7	: 151	: 15.1	
Kota-Hd. Fed. x Kanred-Marquis:	: 703:	: 15.3	: 138	: 15.0	
Marquis x Sunset	: 346:	: 15.4	: 138	: 14.9	
Hard Federation x Prelude	: 251:	: 16.5	: 146	: 14.7	
Kota x Kanred	: 642:	: 15.8	: 138	: 14.6	
Marquis x Erivan	: 916:	: 16.9	: 145	: 14.3	
Marquis x Hard Federation	: 392:	: 15.2	: 130	: 14.2	
Galgalos	: 2398:	: 15.7	: 134	: 14.2	
Hard Federation x Kota	: 324:	: 16.5	: 140	: 14.1	
Kota x Hard Federation	: 308:	: 15.7	: 133	: 14.1	
Marquis x Hard Federation	: 724:	: 15.4	: 129	: 14.0	
Do	: 673:	: 15.3	: 126	: 13.7	
Do	: 402:	: 16.1	: 130	: 13.5	
Prelude	: 4323:	: 17.3	: 138	: 13.3	
Hard Federation (Av. 3 checks):	: 4733:	: 15.2	: 121	: 13.3	
Kota x Hard Federation	: 289:	: 16.1	: 128	: 13.2	
Do	: 344:	: 14.8	: 115	: 13.0	
Erivan	: 2397:	: 16.0	: 123	: 12.8	
Hard Federation x Hussar	: 363:	: 14.6	: 111	: 12.7	
Marquis x Sunset	: 917:	: 14.9	: 113	: 12.6	
Kota (Average 2 checks)	: 5878:	: 15.6	: 111	: 11.9	
Kota x Ruby	: 918:	: 15.4	: 109	: 11.8	
Hard Federation x Kota	: 335:	: 17.4	: 121	: 11.6	
Hard Federation x Prelude	: 271:	: 16.6	: 109	: 10.9	
Kota x Hard Federation	: 298:	: 15.7	: 99	: 10.5	
Sunset	: 4728:	: 14.6	: 81	: 9.3	

College of Agriculture, University Farm, Lincoln (Barberry Eradication, A. F. Thiel)

## WYOMING

College of Agriculture, University of Wyoming, Laramie (Barberry Eradication, E. A. Lungren)

## SOUTH DAKOTA

College of Agriculture, Brookings (Barberry Eradication, R. O. Bulger)



## NORTH DAKOTA

Agricultural Experiment Station, State College Station, Fargo (Flax Diseases, L. W. Boyle)

Agricultural Experiment Station, State College Station, Fargo (Barberry Eradication, G. C. Mayoue)

Dickinson Substation, Dickinson (Cereal Agronomy, R. W. Smith) (December 1, 1927)

In the following table are presented the percentages of stinking smut (bunt) obtained from certain varieties and strains of spring wheat grown in the smut nursery at Dickinson for the past two years. About 100 strains, including all varieties tested for yield in replicated plats and in triplicated 3-row blocks, together with others, were tested in the smut nursery in 1927. Only the data from those grown in the smut nursery both years are presented in the table.

Turkey x Florence is the only strain having no smut either year. Hope, which was grown only in 1927, had only a trace of smut.

Annual and average percentages of bunt obtained from varieties and strains of spring wheat grown from inoculated seed in nursery rows at the Dickinson Substation, Dickinson, N. Dak., in 1926 and 1927

Variety or hybrid	Bunt (per cent)		
	1926	1927	Average
Common			
Turkey x Florence	0	0	0
Florence	0	5	3
Ulka 59	0	8	4
Ulka 70	0	10	5
Quality (Average of checks)	1	15	8
Ulka 58	7	10	9
Marquis x Kanred B9-14	11	10	11
Marquillo	6	20	13
Marquis (Average of checks)	4	21	13
Garnet	0	26	13
Ruby	1	27	14
Marquis x Pioneer	1	26	14
Red Fife	3	24	14
Haynes Bluestem	1	32	17
Reliance	12	22	17
Reward	0	36	18
Marquis x Kota 1656.81	1	34	18
Power Fife	7	30	19
Kota x Kanred 12-4	10	29	20
Preston	5	35	20
Marquis x Monad	3	38	21
Webster	13	32	23
Marquis x Kota 1656.84	1	51	26
Progress	20	33	27
Red Bobs	19	43	31

Continued

Variety or hybrid	Bunt (Per cent)		
	1926	1927	Average
<u>Common (continued)</u>			
Ceres	22	51	37
Marquis x Kota 1656	11	63	37
Do 1656.97	8	66	37
Kota (Average of checks)	21	55	38
Marquis x Kota 1656.10	16	63	40
Hard Federation	16	63	42
Ulka 1	84	84	84
<u>Durum</u>			
Nohola	0	1	1
Mindum	1	9	5
Akroha	0	13	7
Kubanka C. I. 1440	0	13	7
Pentad	0	16	8
Mondak	0	19	10
Kahla	0	22	11
Monad	5	19	12
Nodak	9	17	13

Northern Great Plains Field Station, Mandan (Flax Breeding, J. C. Brinsmade, Jr.) (December 2)

All of the flax threshing and seed cleaning is completed with the exception of some hybrid material which still has to be described.

The average yields of flax in the replicated varietal plats are as follows:

<u>Variety</u>	<u>C.I.No.</u>	<u>Yield</u> <u>(Bu. per acre)</u>	<u>Probable</u> <u>error</u>
N. D. R. 119	326	8.7	.7
Slope	274	7.8	.4
Linota	244	7.7	.5
Winona	179	6.9	.5
N. D. 40013	241	6.9	.3
N. D. R. 114	13	6.8	.5
N. D. R. 52 (N. D. 5020)	275	6.4	.4
Redwing	320	4.9	.5
Long No. 79	280	4.7	.2

Single Varietal Plats

Hybrid (19 x 112)	385	10.0
Selection C. I. 161		9.6
Hybrid (19 x 112)	383	9.4
Selection C. I. 44		8.5
Selection of Winona, 179-9		8.0
Selection C. I. 112		8.0
Selection C. I. 160		7.6
Chippewa	178	7.1
N. D. R. 114	13	5.8

## Date and rate of seeding and tillage experiment

<u>Treatment</u>	<u>Date of seeding</u>	<u>Yield</u> (Bu. per acre)
DDH 4/20	4/20	8.0
DDH 4/20, 4/30	4/30	5.3
DDE 4/20, 4/30/ 5/11	5/11	8.3
DDH 4/20, 4/30, 5/11/ 5/23	5/23	8.1
DDH 4/20, 4/30, 5/11/ 5/23, 5/31	5/31	3.6
DDH 4/20, 4/30/ 5/11/ 5/23/ 5/31, 6/10	6/10	0.0
FDHPk 5/23	5/23	3.5
FDHPk 5/31	5/31	3.7
FDHPk 6/10	6/10	0.0

DD=double disk; H=harrow; P=plov, D=pack with disk; Pk="cultipacker."

Rate of seeding. Averages from plats seeded at three different rates on five dates of seeding.

<u>Rate of seeding</u>	<u>Bushel per acre</u>
16 pounds per acre	6.2
24 Do	6.8
32 Do	6.9

## Flax and Wheat Mixture Experiment

<u>Crop and</u> <u>Rate of Seeding</u>	<u>Yield</u> (Bu. per acre)	<u>Weeds (air dry)</u> (Lbs. per acre)
Flax 15 pounds	1.9 .2	3093
Wheat 10 pounds	5.9 .1	
Flax 15 pounds	1.4 .1	1636
Wheat 20 pounds	10.2 .3	
Flax 15 pounds	1.1 .2	
Wheat 30 pounds	11.7 .2	1380
Flax 25 pounds	2.4 .1	
Wheat 10 pounds	6.1 .2	2126
Flax 25 pounds	1.8 .1	
Wheat 20 pounds	10.0 .2	1191
Flax 25 pounds	1.3 .1	
Wheat 30 pounds	12.4 .2	923
Flax 25 pounds (alone)	3.2 .1	4044
Wheat 60 pounds (alone)	13.3 .5	346

Flax  $F_1$  hybrids sown in the greenhouse October 18 are making good growth. Plants receiving electric light part of the time at night average about 9 inches high, the tallest being about 12 inches high. Unlighted plants average two or three inches shorter, the tallest being still under 9 inches.

There has been more snow in November than we usually have during the entire winter. Precipitation in November was 1.56 inches. The maximum temperature was 53 degrees, November 3; minimum, -6 degrees, November 29.

Northern Great Plains Field Station, Mandan (Cereal Agronomy, E. R. Ausem)

### MONTANA

Judith Basin Substation, Loccasin (Cereal Agronomy, B. B. Bayles)

State College of Agriculture, Bozeman (Barberry Eradication, W. L. Popham)

North Montana Substation, Havre (George Morgan and Dave Savage) (December 5) [In cooperation with the Montana Agricultural Experiment Station.]

A dry land, spring wheat nursery was grown at the North Montana Substation at Havre from seed furnished by J. Allen Clark, Agronomist in charge of western wheat investigations, Office of Cereal Crops and Diseases. Those varieties and hybrids grown in 3-row blocks replicated three times are listed in the following table, in order of their average yields. A favorable season as to rainfall and absence of plant diseases resulted in larger nursery yields than ever obtained at Havre before. Selections of the Kanred x Marquis cross, including Reliance, considerably outyielded Kota, Supreme, Ceres, Marquis, Hope, and Nodak, which ranked for yield in the order named.

Average yield in bushels per acre of 32 spring wheat varieties and hybrids grown in three systematically replicated 3-row blocks at the North Montana Substation, Havre, Mont., in 1927

Variety or hybrid	: Hybrid No.	: Nursery No.:	C.I.No.:	Yield (Bu. per A.)
Kanred x Marquis	: 1718B-8-11-40:	20A :	:	48.6
Do	: B-9-14-24:	37 :	:	48.6
Do	: B-2-14-20:	11 :	:	48.3
Do	: B-8-11-22:	17 :	:	47.8
Do	: B-8-11-61:	22A :	:	46.9
Do	: B-8-11-16:	14 :	:	45.8
Do	: B-9-11-50:	33 :	:	45.4
Do	: B-9-11-48:	32 :	:	45.2
Do	: B-2-14-1 :	2 :	:	45.0
Reliance	: B-8-11 :	2 :	737C :	45.0
Kota x Marquis	:	1656.24 :	:	45.0
Kota x Hard Federation	:	317 :	:	44.9
Marquis x Hard Federation	:	371 :	:	44.9
Kanred x Marquis	: B-9-14-24:	37 :	:	43.6



Continued

Variety or hybrid	:Hybrid No.:	Nursery No.:	C.I.No.:	Yield (Bu. per A.)
Kota x Galgalos	:	432 :	:	43.6
Marquis x Hard Federation	:	377 :	:	43.2
Kanred x Marquis	:B-2-14-20 :	3 :	:	43.2
Do	:	II-13-44 :	:	43.2
Do	:	II-14-40 :	:	42.9
Do	:B-9-11-27 :	28 :	:	42.7
Kota	:	:	5878 :	42.1
Kanred x Marquis	:B-9-14-22 :	36 :	:	41.9
Supreme	:	:	8026 :	41.7
Kota x Marquis	:	1656.81 :	:	41.7
Marquis x Sunset	:	477 :	:	41.5
Ceres	:	:	6900 :	40.6
Marquis <sup>a/</sup>	:	:	3641 :	39.9
Kota x Marquis	:	1656.109 :	:	39.5
Marquis x Erivan	:	239 :	:	39.3
Hope	:	:	8178 :	37.5
Mondak	:	:	7287 :	36.9
Kota x Hard Federation	:	285 :	:	34.9
Marquis x Prelude	:	:	:	34.6

<sup>a/</sup> Average of 9 check rows

# WESTERN BASIN AND COAST AREAS (North to West and South)

## IDAHO

Aberdeen Substation, Aberdeen (Cereal Agronomy, G. A. Wiebe)

Agricultural Experiment Station, Moscow (Stripe Rust, C. W. Hungerford)

## WASHINGTON

Agricultural Experiment Station, Pullman (Cereal Breeding, E. F. Gaines)

## OREGON

Sherman County Branch Station, Moro (Cereal Agronomy, D. E. Stephens)  
(December 15)

Weather favorable for winter grain prevailed at Moro throughout the month of November. The total precipitation was 2.38 inches. The lowest temperature recorded was 23 degrees.

The following tables present the results obtained in the tillage experiments at Moro in 1927.

Yield in bushels per acre of Turkey winter wheat in tillage experiments at the Sherman County Branch Station, Moro, Oreg., in 1927

[Early vs. Late Fall Plowing for Fallow]

Flat No.:	Method of Cultivating Fallow	: Yield (Bu. per acre)
	: <u>Early fall sowing</u>	:
371	: Clean cultivation	: 35.5
372	: One harrowing	: 30.5
373	: Check - spring plowed	: 40.3
374	: Clean cultivation. Crop not harrowed	: 36.7
375	: Clean cultivation. Crop harrowed	: 34.2
376	: Clean cultivation	: 34.5
377	: One harrowing	: 26.7
378	: Check - spring plowed	: 35.3
379	: Clean cultivation. Crop not harrowed	: 38.3
380	: Clean cultivation. Crop harrowed	: 36.5
	: Average*	: 34.1

\*Excluding checks

Flat No.:	Method of Cultivating Fallow	: Yield (Bu. per acre)
	: <u>Late fall plowing</u>	:
471	: Clean cultivation	: 35.5
472	: One harrowing	: 27.3
473	: Check - spring plowed	: 37.3
474	: Clean cultivation. Crop not harrowed	: 35.2
475	: Clean cultivation. Crop harrowed	: 34.0
476	: Clean cultivation	: 37.5
477	: One harrowing	: 29.3
478	: Check - spring plowed	: 38.5
479	: Clean cultivation. Crop not harrowed	: 35.3
480	: Clean cultivation. Crop harrowed	: 32.9
	: Average*	: 33.5

\*Excluding checks

Flat No.:	Method of Cultivating Fallow	: Yield (Bu. per acre)
	: <u>April plowing</u>	:
181	: Clean. Packed (Dunham packer)	: 44.0
182	: None	: 41.2
183	: Clean cultivation. Spring disked	: 40.2
184	: One harrowing	: 40.0
185	: Clean cultivation. Crop not harrowed	: 39.0
186	: Clean cultivation. Crop harrowed	: 36.5
187	: Campbell packed. Harrowed once	: 40.3
188	: Clean cultivation. Spring disked	: 40.5
189	: Campbell packed. Clean cultivation	: 39.7
190	: Clean cultivation. Fall and spring disked	: 43.1
	: Average*	: 40.5

\*Excluding checks

Continued

Plat No.:	Method of Cultivating Fallow	: Yield (Bu. per acre)
	: <u>May plowing</u>	:
231	: Clean cultivation. Packed (Dunham packer)	: 30.0
232	: No cultivation	: 30.7
233	: Clean cultivation. Spring disked	: 35.3
234	: One harrowing	: 30.3
235	: Clean cultivation. Crop not harrowed	: 30.8
236	: Clean cultivation. Crop harrowed	: 27.3
237	: Campbell packed. Harrowed once	: 33.5
238	: Clean cultivation. Spring disked	: 35.3
239	: Campbell packed. Clean cultivation	: 31.5
290	: Clean cultivation. Fall and spring disked	: 34.7
	: Average*	: 31.1

\*Excluding checks

Plat No.:	Method of Cultivating Fallow	: Yield (Bu. per acre)
	: <u>June plowing</u>	:
331	: Clean cultivation. Packed (Dunham packer)	: 24.0
332	: No cultivation	: 25.2
333	: Clean cultivation. Spring disked	: 37.7
334	: One harrowing	: 23.7
335	: Clean cultivation. Crop not harrowed	: 20.3
336	: Clean cultivation. Crop harrowed	: 19.7
337	: Campbell packed. Harrowed once	: 20.3
338	: Clean cultivation. Spring disked	: 35.1
339	: Campbell packed. Clean cultivation	: 22.5
390	: Clean cultivation. Fall and spring disked	: 30.7
	: Average*	: 23.3

\*Excluding checks

Plat No.:	Method of Cultivating Fallow	: Yield (Bu. per acre)
	: <u>Shallow spring plowing</u>	:
571	: Clean packed with Dunham packer	: 31.1
572	: No cultivation	: 32.5
573	: Clean cultivation	: 39.4
574	: One harrowing	: 31.8
575	: Clean cultivation. Crop not harrowed	: 33.2
576	: Clean cultivation. Crop harrowed	: 32.5
577	: Campbell packed. One harrowing	: 33.8
578	: Clean cultivation	: 35.2
579	: Campbell packed. Clean cultivation	: 31.7
580	: Clean cultivation. Fall and spring disked	: 35.2
	: Average*	: 32.7

\*Excluding checks

	: <u>Deep spring plowing</u>	:
671	: Clean packed with Dunham packer	: 32.2
672	: No cultivation	: 33.9
673	: Clean cultivation	: 35.4
674	: One harrowing	: 34.2
675	: Clean cultivation. Crop not harrowed	: 34.7
676	: Clean cultivation. Crop harrowed	: 32.5
677	: Campbell packed. One harrowing	: 30.6
678	: Clean cultivation	: 33.4
679	: Campbell packed. Clean cultivation	: 31.6
680	: Clean cultivation. Fall and spring disked	: 34.5
	: Average*	: 33.4

\*Excluding checks

## CALIFORNIA

Biggs Rice Field Station, Biggs (Rice Agronomy, J. W. Jones)

University Farm, Davis (Cereal Agronomy, V. H. Florell) (December 10)

Cereals in both plat and nursery experiments were sown during the period from December 2 to 9. The seed bed was in excellent condition and the weather fine for seeding operations. It had been planned to begin seeding at the usual time in November, or about November 10, but on the day when seeding was to begin a rainy period set in. The rains continued during a period of about two weeks so that it was not possible to sow until early in December. Experience in the past has shown that December-sown grain often comes through the season in better condition than when sown earlier, since less lodging occurs. A light rain fell again last night which should cause good germination.

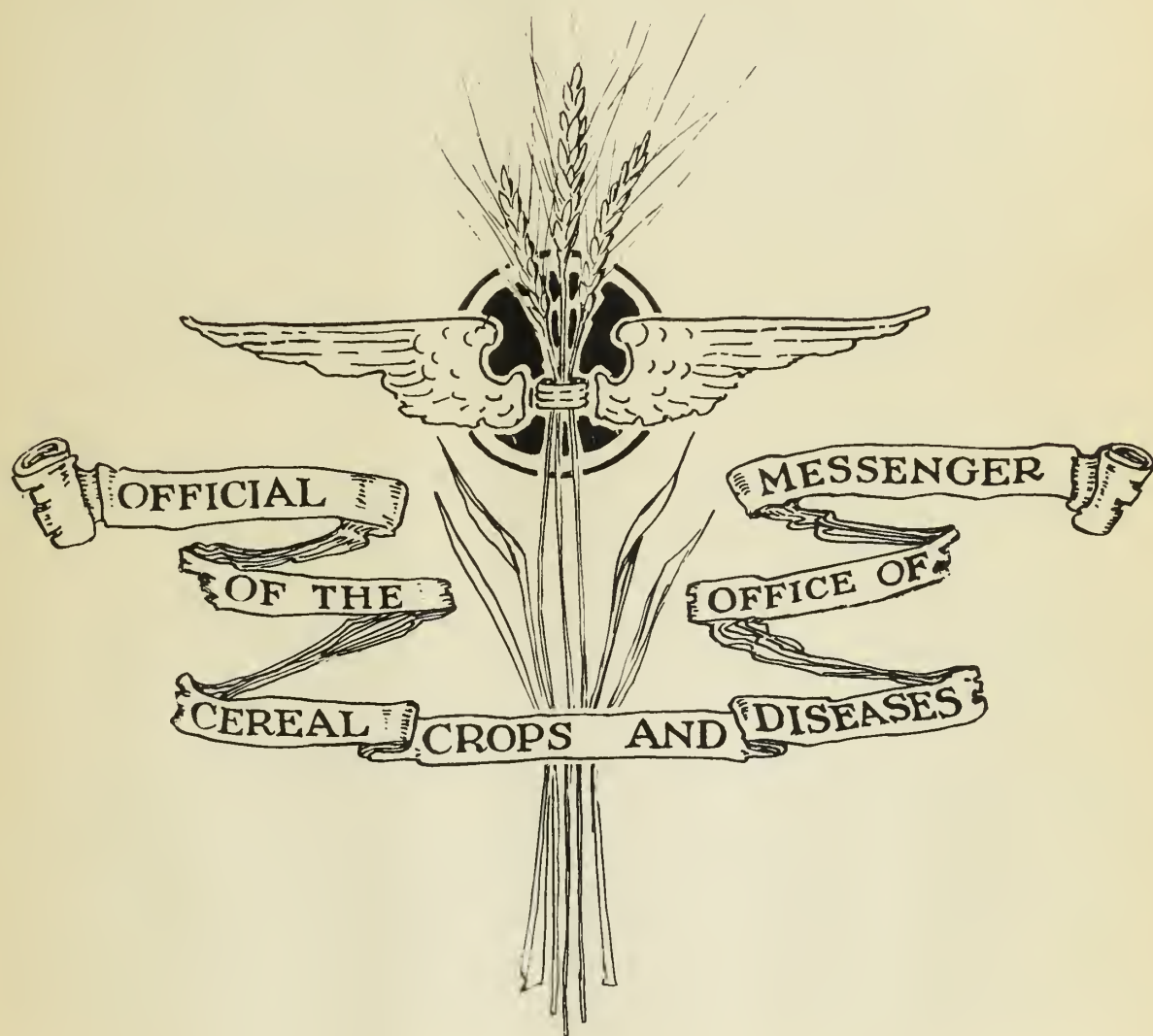
A small acreage of grain has been sown early on some of the fallowed land in the vicinity of Davis; however, a majority of the fields will be winter sown. Farmers have been very busy the past week with their tractors getting the seed bed in condition.

There have been a number of visitors during the fall. A. C. Dillman, associate agronomist in charge of seed flax investigations, visited the station on October 17. Dr. Victor Talanoff and daughter, of the Institute of Applied Botany, Leningrad, Russia, were visitors on October 22. M. A. McCall, agronomist in charge of cereal agronomy, was a visitor on October 27. Prof. G. K. Meister, of Saratov, Russia, spent the entire day of November 1, inspecting what was left of the cereal experiments and discussing cereal problems.

Agricultural Experiment Station, Berkeley (Cereal Smuts, F. N. Briggs)



# CEREAL COURIER



BUREAU  
OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

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Vol. 19

No. 32

December 31, 1927  
Personnel (Dec. 16-31) and Project Issue

### PERSONNEL ITEMS

Dr. C. R. Ball, senior agronomist in charge, was authorized to attend, at his own expense, the meetings of the American Association for the Advancement of Science at Nashville, Tenn., from December 27 to 31, inclusive.

Dr. J. G. Dickson, agent in the cooperative cereal disease investigations that are being conducted at Madison, Wis., was authorized to attend, at his own expense, the meetings of the American Association for the Advancement of Science at Nashville, Tenn., from December 27 to 31, inclusive.

Dr. E. F. Gaines, cerealist at the State College of Agriculture, Pullman, Wash., and agent in the breeding of wheats for resistance to stinking smut in cooperation with this Office, who has been in Washington since November 20, left on December 25 to return to his headquarters at Pullman. Dr. Gaines was authorized to attend, at his own expense, the meetings of the American Association for the Advancement of Science at Nashville, Tenn., from December 27 to 31. Dr. Gaines also expected to make stops at Louisville, Ky., St. Louis, Mo., Manhattan, Kans., Laramie, Wyo., and Ft. Collins, Colo., to confer with officials of agricultural experiment stations and others regarding cereal breeding experiments.

Dr. A. G. Johnson, senior pathologist in charge of cereal disease investigations, was authorized to attend the meetings of the American Association for the Advancement of Science at Nashville, Tenn., from December 27 to 31, inclusive.

Dr. E. B. Gains, agent in the cereal disease investigations conducted in cooperation with the Purdue University Agricultural Experiment Station at La Fayette, Ind., was authorized to attend, at his own expense, the meetings of the American Association for the Advancement of Science at Nashville, Tenn., from December 27 to 31, inclusive.

H. H. McKinney, pathologist in charge of cereal virus disease investigations, left Washington on December 24 for Nashville, Tenn., to confer with experiment station officials and others in attendance at the meetings of the American Association for the Advancement of Science at Nashville, Tenn., from December 27 to 31. Mr. McKinney also was authorized to go to St. Louis, Mo., La Fayette, Ind., Chicago, Ill., Madison, Wis., St. Paul, Minn., and Fargo, N. Dak., to confer with experiment station officials and Department employees regarding the investigations of which he is in charge. Mr. McKinney will return to Washington about the latter part of January.

R. W. Smith, associate agronomist in charge of the cooperative cereal experiments at the Dickinson Substation, Dickinson, N. Dak., who has been in Washington since November 23, left on December 24 to return to his headquarters. He was authorized to attend, at his own expense, the meetings of the American Association for the Advancement of Science at Nashville, Tenn., from December 27 to 31, inclusive. At St. Paul, Minn., Mr. Smith was to stop for one day to confer with officials of the Minnesota Agricultural Experiment Station at University Farm.

A. F. Swanson, assistant agronomist in charge of the cooperative cereal experiments at the Fort Hays Branch Station, Hays, Kans., has been authorized to spend part of the winter months at the Kansas Agricultural Experiment Station, Manhattan, Kans., to prepare his report of the past year's experiments at Hays and a manuscript for publication. Mr. Swanson also will prepare seed for spring sowing at Hays.

#### VISITORS

Dr. Jean Dufrénoy, Director, La Station de Pathologie Végétale, Corrèze, France, addressed a group of plant pathologists and botanists of the Department on Friday, December 23, on the subject of some of his recent research on the relation of fungous invasion of plant tissues to metabolism. During the course of his address he showed several drawings and a number of lantern slides which served to illustrate the important phases of his research.

At the same meeting, Dr. F. C. Steward, of the University of Leeds, England, gave a brief talk on the results of some of his microchemical investigations.

Messrs. Dufrénoy and Steward are International Education Board Fellows who have been carrying on research in their respective lines of investigations at Cornell University. They left Washington on the afternoon of the 25th to attend the meetings of the American Association for the Advancement of Science at Nashville, Tenn. Following the meetings Dr. Dufrénoy went direct to Orlando, Fla., where he will spend two months in the investigation of certain citrus fruit problems. Dr. Steward returned from Nashville to Ithaca, N. Y., to resume his research in microchemistry.



# MANUSCRIPTS AND PUBLICATIONS

79 A manuscript entitled "The Combined Harvester-Thresher in the Great Plains," by L. A. Reynoldson and R. S. Kifer, of the Bureau of Agricultural Economics, John R. Martin, Office of Cereal Crops and Diseases, Bureau of Plant Industry, and W. R. Humphries, of the Bureau of Public Roads, was submitted on December 20 for publication as a Technical Bulletin.

70 A manuscript entitled "Median Terms in Adjectives of Comparison," by O. R. Ball, H. L. Shantz, and C. F. Shaw, was approved on December 22 for publication in the Journal of the American Society of Agronomy.

31 A manuscript entitled "Bacterial Stripe Blight of Oats," by T. R. Stanton, was approved on December 27 for publication in a circular of the Quaker Oats Company.

Page proof of Misc. Pub. No. 7, "Bread or Barberries," by Edith M. Patch, was read December 20.

Farmers' Bulletin No. 1544, "The Common Barberry and Black Stem Rust," by E. C. Stakman, F. E. Kempton, and Lynn D. Hutton, was received from the Government Printing Office on December 28. (Pp. 1-28, figs. 1-14. November, 1927.)

The article entitled "Bacterial Stripe Blight of Oats," by Charlotte Elliott, appears in the Journal of Agricultural Research 35 (9): 811-824, figs. 1-3. November 1, 1927. (Received December 30) (Cooperation between the Office of Cereal Crops and Diseases and Pathological Laboratory, Bureau of Plant Industry.)

Tech. Bul. No. 14, "Cereal Experiments at the Fort Hays Branch Station, Hays, Kans., 1912 to 1923," by Arthur F. Swenson, was received from the Government Printing Office on December 31. (Pp. 1-56, figs. 1-24. November, 1927.) (Cooperation between the Office of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

## PROJECT REPORT

## WESTERN WHEAT INVESTIGATIONS

(J. Allen Clark, Agronomist in Charge)

Yields of spring wheat varieties and hybrids in Montana

Identical dry-land, spring-wheat nurseries were grown in cooperation with the Montana Agricultural Experiment Station at the Bozeman, Moccasin, and Havre stations. Thirty-two varieties and hybrids were grown in 3-row blocks replicated three times. These are listed in the following table, in the order of their average yields at the three stations. There was no rust or other diseases present and there was an abundance of moisture at both Bozeman and Havre. The highest yielding strains are of the Kanred x Marquis cross, including Reliance. The B-9-14 selections are awnleted, while all other selections of the cross are awned. Certain awnless Marquis x Hard Federation selections in this and other nurseries appeared very promising. The highest yielding named varieties are Reliance, Supreme, and Marquis.

Average yield in bushels per acre of 32 spring-wheat varieties and hybrids grown in three systematically replicated 3-row blocks at the Bozeman, Moccasin, and Havre, Mont., stations in 1927

Variety or hybrid	Yield, bu. per acre			
	: C. I. : Nursery	: Hybrid No. :	: Bozeman :	: Moccasin : Havre : Ave.
	: No. :	: No. :		
Kanred x Marquis	: : 11	: B-2-14-20 :	64.7:	24.1 : 48.3: 45.7
Do	: : 37	: B-9-14-24 :	57.0:	30.3 : 48.6: 45.5
Do	: : 41	: B-9-14-42 :	60.3:	31.3 : 43.6: 45.1
Do	: : 33	: B-9-11-50 :	58.0:	28.3 : 45.4: 44.1
Do	: : 14	: B-3-11-16 :	60.3:	24.5 : 45.8: 43.5
Reliance	: 7370:	: B-8-11 :	61.7:	22.4 : 45.0: 43.0
Kanred x Marquis	: : 22A	: B-8-11-64 :	56.7:	25.0 : 46.9: 42.9
Do	: : 23	: B-9-11-27 :	57.0:	24.5 : 42.7: 41.4
Supreme	: 3026:	: :	53.3:	23.9 : 41.7: 41.3
Marquis x Hard Federation:	: 377	: 2A-1-34-31 :	54.3:	25.7 : 43.2: 41.1
Kanred x Marquis	: : 20A	: B-8-11-40 :	50.7:	23.6 : 43.6: 41.0
Do	: : 36	: B-9-14-22 :	51.3:	23.9 : 41.9: 40.7
Do	: : II-13-44:	: :	50.3:	25.3 : 43.2: 39.6
Do	: : 17	: B-3-11-22 :	47.0:	23.5 : 47.8: 39.4
Kota x Marquis	: 3004:1656-34 :	: :	49.3:	23.3 : 45.0: 39.4
Kanred x Marquis	: : II-17-40:	: :	50.7:	23.5 : 42.9: 39.0
Marquis x Hard Federation:	: 399	: 2B-1-24-63 :	49.3:	23.2 : 38.6: 38.7
Kanred x Marquis	: : 2	: B-2-14-1 :	47.3:	23.3 : 45.0: 38.5
Do	: : 32	: B-9-11-48 :	46.7:	23.1 : 45.2: 38.3
Marquis x Erivan	: : 239	: B-3-12-6 :	50.0:	25.3 : 39.3: 38.2

Continued

Variety or hybrid	: C. I. : Nursery :		: Hybrid No. :	Yield, bu. per acre			
	: No. :	No. :		Bozeman:	Moccasin:	Havre:	Average
Kota x Marquis	: 3185:	1656-31 :	:	43.3:	23.6 :	41.7:	37.9
Marred x Marquis	: : 3 :	2-2-14-2 :	:	44.7:	24.3 :	43.2:	37.4
Marquis <sup>a</sup>	: 3641:	:	:	41.0:	25.0 :	39.9:	35.3
Mondak	: 7287:	:	:	44.0:	24.1 :	36.9:	35.0
Kota x Marquis	: 8006:	1656.109:	:	42.3:	20.7 :	39.5:	34.2
Ceres	: 6900:	:	:	39.3:	22.3 :	40.6:	34.1
Kota	: 5878:	:	:	39.3:	20.8 :	42.1:	34.1
Marquis x Sunset	: : 477 :	:	:	35.3:	24.3 <sup>b</sup> :	41.5:	34.0
Kota x Hard Federation:	: 285 :	3A-1-16-4-3:	:	40.0:	23.6 :	34.9:	32.8
Kota x Galgalos	: : 482 :	:	:	35.0:	18.9 <sup>c</sup> :	43.6:	32.5
Hope	: 3178:	:	:	35.7:	23.1 :	37.5:	32.1
Marquis x Prelude	: : 2413 :	:	:	32.7:	19.2 :	34.6:	28.8

<sup>a</sup> Average of Marquis check rows<sup>b</sup> Nursery No. 346 substituted<sup>c</sup> Nursery No. 364 substituted

The yields of Reliance, Supreme, and Marquis in plat experiments at the same stations are as follows:

	<u>Bozeman</u>	<u>Moccasin</u>	<u>Havre</u>	<u>Average</u>
Reliance	70.7	22.2	40.6	44.5
Supreme	69.3	21.4	39.3	43.3
Marquis	68.3	18.2	36.8	41.1

## OFFICE SEMINARS

The Office of Cereal Crops and Diseases has prepared a schedule of five Office seminars to be held in the winter of 1927-28. An attempt has been made to choose subjects of general interest and of immediate importance in the Office program. Field men who may be in Washington on any of the dates will be placed on the program so as to bring to the attention of the Office personnel as many angles as possible of the problems under discussion. The program and the dates are as follows:

### 1. BUNT OR STINKING SMUT OF WHEAT

December 22, 3:30 p.m., Room 105, 1306 B St., S. W.

Miss Marion A. Griffiths:

A review of the present field situation and of recent information on the bunt organism.

Mr. D. E. Stephens)  
Dr. E. F. Gaines ):

A review of the bunt situation in the Pacific Northwest and its effect on breeding programs.

Mr. R. W. Smith:

A brief résumé of the situation in the Dakotas.

### 2. STEM RUST OF CEREALS

January 5, 3:30 p. m., Room 105, 1306 B St., S. W.

Dr. H. B. Humphrey:

Recent discoveries in the life history of the stem rust fungus, and their relation to future problems and work.

Dr. E. C. Stakman:

A review of stem rust epidemiology.

Dr. C. R. Ball )  
Mr. L. D. Hutton):

The present and future status of barberry eradication.

### 3. THE RELATION OF OUR CEREAL BREEDING PROGRAM TO DISEASE CONTROL

January 26, 3:30 p.m., Room 105, 1306 B St., S. W.

Dr. C. E. Leighty:

Breeding for resistance to leaf rusts of wheat and rye.

Mr. J. Allen Clark:

The present status of breeding to control stem rust of wheat.

Dr. F. N. Briggs:

Breeding bunt-resistant wheats.



## 3. (Continued)

January 26, 3:30 p. m., Room 105, 1306 B St., S. W.

M. A. McCall:

Cooperation between Agronomy and Pathology in developing an adequate cereal breeding program.

## 4. THE EUROPEAN CORN BORER

February 16, 3:30 p. m., Room 105, 1306 B St., S. W.

Dr. W. H. Larrimer:

A summary of the present corn borer situation and its probable final outcome.

Dr. C. R. Ball:

A review of the corn borer research program.

Mr. F. D. Richey:

Agronomic research to meet the corn borer problem.

5. AN ILLUSTRATED REPORT OF FOREIGN EXPLORATION WITH  
THE ALLISON V. ARMOUR EXPEDITION

March 3, 3:30 p. m., Room 105, 1306 B St., S. W.

Mr. H. H. McKinney.

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